

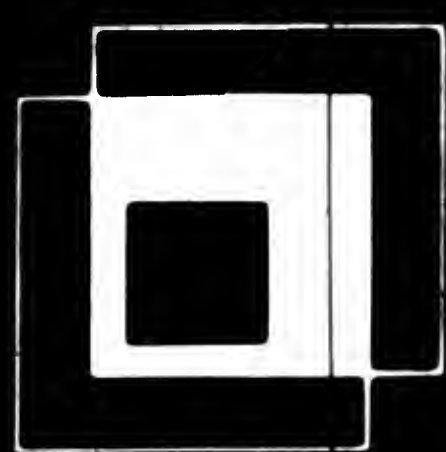
U. S.
OFFICIAL GAZETTE
UNITED STATES
PATENT OFFICE

VOL 885

APRIL

1971

MICRO PHOTO DIVISION



BELL & HOWELL

JLN

OFFICIAL GAZETTE of the UNITED STATES PATENT OFFICE

April 6, 1971

Volume 885

Number 1

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PATENT OFFICE NOTICES

Identification for Application Correspondence

The Office is continuing to experience difficulty in matching incoming papers with the corresponding application files. This applies especially to responses to Office Actions, powers of attorney, changes of address, status letters, requests for extensions of time, and petitions.

A very necessary part of a complete identification of a pending application is the three-digit Group or Art Unit number, e.g., 110 or 111. Frequently, the Group Art Unit number is entirely omitted, or there are errors in this number. In the latter situation the error often occurs as a result of the case having been reassigned within the Office, and the communication is directed to an Examining Group other than that indicated in the most recent Office Action.

Where the Group Art Unit number is entirely omitted, the routine operations of the Application Branch must be interrupted solely for the purpose of determining the location of the application so that the communication can be properly routed. Under these circumstances the efficiency of the Application Branch is impaired and the incoming paper is delayed in reaching its proper destination. Where such papers are not essential to compliance with a statutory period or time limit for response, they may be returned for completion to identify the location of the files.

To assist the Office in expediting its business, it is requested that ALL papers relating to a pending application include the following information:

1. Serial number (checked for accuracy),
2. Group Art Unit number (copied from filing receipt or most recent Office Action),
3. Filing date,
4. Name of the Examiner who prepared the most recent Office Action,
5. Title of the invention.

To further reduce the burden on the Application Branch and the Examining Groups, it is also requested that the submission of additional or supplemental papers on a newly filed application be deferred until a filing receipt has been received. In the same vein, it would be appreciated if the filing of additional papers relating to an allowed application were referred until a notice of allowance (POL-45) was received.

If the above suggestions are adopted the processing of both new and allowed applications could proceed more efficiently and promptly through the Patent Office.

RICHARD A. WAHL,
Assistant Commissioner.

Mar. 5, 1971.

Patent Sales

Notices under 35 U.S.C. 290; Patent Act of 1952

2,685,954, T. H. Curtis, PROCESSING MACHINES; 2,709,512, same, filed Apr. 6, 1970, D.C. N.D. Ill. (Chicago), Doc. 70c793, *M & T Chemicals, Inc. v. Kewanee Oil Co.* Cause stricken from the calendar without prejudice, Oct. 29, 1970.

2,695,190, E. Melerjohan, ARTICLE TRANSFERRING APPARATUS; 2,873,996, C. J. McHugh, LIFTING CUP FOR ARTICLE TRANSFERRING APPARATUS, filed Nov. 15, 1967, D.C., S.D. Tex. (Houston), Doc. 67-H-869, *The Lodge & Shipley Company v. Holstein & Koppert G.m.b.H. and Wolfgang Backhaus*. Claim 12 of Patent No. 2,695,190 invalid and not infringed. Claim 8 of Patent No. 2,873,996 invalid and not infringed. Action dismissed with prejudice, Oct. 26, 1970.

2,708,376, C. H. Booth, CUTTING AND ABRADING TOOLS, filed Nov. 6, 1970, D.C. S.D.N.Y., Doc. 70-C-4873, *The Stanley Works v. Wim Distributors*.

2,709,512. (See 2,685,954.)

2,801,510, R. R. Colburn, TRACTOR MOUNTED ROTARY DISC MOWER; 2,869,304, same, COMBINED TRACTOR AND POWER MOWER, filed Nov. 20, 1970, D.C., E.D. Wis. (Milwaukee), Doc. 70-C-658, *E. L. Colburn and R. R. Colburn v. Simplicity Manufacturing Co. Inc.*

2,843,012, Butterworth and Morse, PHONOGRAPH PERFORMANCE ILLUSTRATOR, filed Nov. 18, 1970, D.C. Md. (Baltimore), Doc. 70-1308-K-C, *Herbert Wallace Butterworth v. General Electric Company et al.*

2,873,996. (See 2,695,190.)

2,869,304. (See 2,801,510.)

2,923,144, T. R. Smith, FLUID CONTROL SYSTEM FOR WASHING MACHINE, filed Nov. 30, 1970, D.C., N.D. Ill. (Chicago), Doc. 70c2990, *The Maytag Co., etc. v. General Motors Corp., etc.*

2,945,582, Abraham and Metzger, BOWLING BALL CARRYING CASE, filed Nov. 20, 1970, D.C., N.D. Ill. (Chicago), Doc. 70c2923, *Triangle Leather Goods Company v. Paul Abraham and Roman Metzger*.

2,994,237, H. Pelphrey, deceased, by Lillian Pelphrey, administratrix, TOOTH FORMING TOOL; 3,015,243, J. C. Drader, TOOL FOR PRESSURE FORMING TOOTHED ELEMENTS, filed Nov. 27, 1970, D.C. E.D. Mich. (Detroit), Doc. 35711, *Michigan Tool Co. v. Techtool, Inc. Same, filed Nov. 27, 1970, D.C., E.D. Mich. (Detroit), Doc. 35712, Michigan Tool Co. v. Rendall Tool Co.; Rendall Tool & Gage Co.*

3,015,243. (See 2,994,237.)

3,018,272, Griffing and Remington, SULFONATE CONTAINING POLYESTERS DYEABLE WITH BASIC DYES, filed Nov. 12, 1970, D.C., S.D.N.Y., Doc. 70-C-4978, *E. I. du Pont de Nemours & Co. v. Eastman Chemical Products, Inc.*

3,021,871, F. J. Rodgers, HOSE FOR PORTABLE PNEUMATIC EQUIPMENT, filed Nov. 25, 1970, D.C., E.D. Wis. (Milwaukee), Doc. 70-C-663, *Samuel Moore & Company v. Imperial-Eastman Corporation*.

3,105,713, F. J. Hassler, APPARATUS FOR BULK CURING TOBACCO; 3,110,326, same, METHOD FOR BULK CURING TOBACCO, filed May 15 1964, D.C., E.D.N.C. (Raleigh), Doc. 878-C, *Powell Manufacturing Co., Inc. and R. H. Bouligny, Inc. v. Long Manufacturing Company*. Ordered plaintiffs' claim for relief denied. Patent claims are declared invalid and void. Nov. 18, 1970.

3,110,326. (See 3,105,713.)

3,155,814, Appleman and Eck, INFRARED RADIANT HEATING OVEN, filed Nov. 10, 1970, D.C., S.D.N.Y., Doc. 70-C-4916, *Alfon A. Wolz and Radiant Oven Corp. v. Litton Industries, Inc.*

3,174,314, Forest and Czarnetzky, METHOD FOR THE PRESERVATION OF SILAGE, filed Nov. 3, 1970, D.C., N.D. Iowa (Fort Dodge), Doc. 70-C-2039-C, *International Stock Food Corporation v. M & M Livestock Products Co.*

3,188,468, L. E. Packard, METHOD AND APPARATUS FOR AUTOMATIC STANDARDIZATION IN LIQUID SCINTILLATION SPECTROMETRY, filed June 8, 1970, D.C. Conn. (New Haven), Doc. 13884, *Packard Instrument Company, Inc. v. Picker Corporation et al.* Stipulation final judgment, plaintiff owner of patent, defendant infringed and enjoined, Nov. 28, 1970.

3,201,960, I. L. Berkowitz, COMBINATION MAGNETIC AND MECHANICAL LATCH, filed May 21, 1969, D.C., E.D.N.Y. (Brooklyn), Doc. 69-C-546, *Kason Hardware Corp. v. Instrument Systems Corp.* Consent judgment for injunction, Nov. 23, 1970.

3,254,845, P. W. Schlosser, FLUID POWER TRANSFER APPARATUS; 3,367,270, same, filed Feb. 6, 1967, D.C., N.D. Ill. (Chicago), Doc. 67c201, *Panther Pumps & Equipment Company, Inc. v. Hydrocraft, Inc. et al.* Final judgment, permanent injunction against defendants, Nov. 24, 1970.

3,267,587, Niemiec and Satterlee, HAIR DRYER, filed Feb. 10, 1970, D.C. Minn. (St. Paul), Doc. 3-70-C-28, *Sunbeam Corporation v. Faberge, Inc.* Defendant owner of patent; plaintiff has infringed; complaint dismissed with prejudice, Nov. 27, 1970.

3,285,752, Hansen, Schwall and Colburn, METHOD OF PREPARING A POULTRY PRODUCT, filed Oct. 23, 1967, D.C., N.D. Ill. (Chicago), Doc. 67c1829, *Armour and Company v. Swift and Company*. Judgment, order, claims of patent invalid; defendant has not infringed, Nov. 27, 1970.

APRIL 6, 1971

U. S. PATENT OFFICE

3

3,302,731, J. W. Perry, POST DRIVING AND COMPACTING MACHINE; 3,335,804, same, POST DRIVING MACHINE, filed Nov. 24, 1970, D.C. Ariz. (Phoenix), Doc. C-70-645 Phx., *Goettl Bros., Metal Products, Inc. v. James W. Perry et al.*

3,335,804. (See 3,302,731.)

3,367,270. (See 3,254,845.)

3,371,828, N. E. Elsas, TURNING APPARATUS, filed Nov. 13, 1970, D.C., E.D.N.Y. (Brooklyn), Doc. 70-C-1406, *Nemo Industries, Inc., Sunbrand Corporation v. L.I.F. Machine Company, Inc.*

3,376,752, E. E. Malone, GRAVEL SAMPLING MACHINE, filed Nov. 16, 1970, D.C. Idaho (Boise), *Eugene E. Malone v. Tucin Falls Construction Co. et al.*

3,433,939, M. F. Lothman, DECORATIVE NIGHT LIGHT, filed Oct. 21, 1970, D.C., C.D. Calif. (Los Angeles), Doc. 70-2387-CC, *Kenneth A. Sieloff et al. v. Hillcrest Manufacturing Company, Inc. et al.*

3,436,787, W. H. Wisdom, STEAM AND VACUUM NOZZLE; 3,439,374, same, filed Nov. 27, 1970, D.C. Nev. (Las Vegas), Doc. C-LV-1531, *Steamatic, Inc. v. Joe D. Evans and Penny D. Evans, doing business as Steamatic of Las Vegas et al.*

3,439,374. (See 3,436,787.)

3,494,333, R. P. Mommer, ANIMAL INSECTICIDE DUST DISPENSER BAG, filed Nov. 6, 1970, D.C. Conn. (New Haven), Doc. B-212, *Balcom Chemicals, Inc. v. Arkell Safety Bag Co., Inc., Chase Bag Company, Inc.*

3,538,388, Levesque and Harper, SUBELEMENT FOR ELECTRONIC CIRCUIT BOARD, filed Nov. 3, 1970, D.C., C.D. Calif. (Los Angeles), Doc. 70-2470-CC, *Circuit-Stik, Inc. v. Bishop Graphics, Inc. et al.*

D. 219,118, Baker and Plecia, BOAT, filed Nov. 20, 1970, D.C., N.D. Calif. (San Francisco), Doc. C70-2504 RFP, *Sidewinder Marine, Inc. v. Bruce Nescher and Steekcraft Boats, Inc.*

Certificates of Correction for the Week of Apr. 6, 1971

D. 217,941	3,530,612	3,436,303	3,547,985
D. 219,280	3,531,252	3,436,535	3,548,217
3,219,666	3,531,463	3,436,712	3,548,377
3,245,329	3,531,518	3,436,757	3,548,854
3,306,800	3,531,537	3,438,252	3,549,070
3,431,656	3,531,822	3,438,254	3,549,384
3,478,465	3,532,234	3,438,503	3,549,575
3,489,103	3,532,264	3,439,369	3,549,686
3,489,351	3,532,349	3,439,403	3,549,687
3,491,420	3,533,096	3,439,684	3,549,799
3,493,897	3,533,217	3,439,861	3,549,885
3,495,239	3,533,788	3,440,346	3,550,788
3,499,749	3,533,792	3,541,037	3,551,375
3,508,251	3,533,821	3,541,760	3,551,749
3,509,302	3,533,864	3,541,872	3,552,325
3,511,472	3,533,928	3,542,860	3,552,540
3,511,804	3,533,958	3,542,903	3,552,579
3,514,576	3,534,147	3,542,919	3,552,818
3,516,002	3,534,179	3,543,752	3,552,953
3,519,453	3,534,253	3,543,889	3,552,974
3,519,946	3,534,257	3,544,391	3,553,140
3,520,047	3,534,270	3,545,648	3,553,644
3,520,830	3,534,295	3,545,907	3,554,075
3,526,690	3,534,369	3,546,133	3,554,179
3,526,722	3,534,504	3,546,298	3,554,267
3,527,267	3,534,936	3,546,335	3,555,010
3,527,425	3,535,276	3,546,510	3,555,169
3,527,935	3,535,280	3,546,711	3,555,249
3,528,348	3,535,469	3,546,716	3,555,383
3,528,488	3,535,490	3,546,974	3,559,215
3,528,784	3,535,633	3,547,322	
3,528,926	3,535,647	3,547,587	
3,529,672	3,536,030	3,547,908	

Early Notification of Serial Number

To ensure prompt notification of the receipt of newly filed application papers, self-addressed post cards will be date

stamped and promptly returned to the sender by the Correspondence and Mail Division.

If early notification of the serial number is also desired, an additional self-addressed post card should be submitted. Upon receipt of application papers with two return post cards, Correspondence and Mail Division will stamp both cards with the receipt date and return one card to the sender. The second card will be forwarded to the Application Branch where both the card and application papers will be stamped with a serial number and the card returned to the sender.

The identifying data on the post card intended for evidence that the Patent Office has received a complete set of application papers should include applicant's name(s); title of the invention; number of pages of specification, claims, and sheets of drawing; whether oath or declaration used; and amount and manner of paying the fee.

When more than one set of application papers is filed under one cover, a return post card should be attached to each set of papers for which a receipt is desired.

RICHARD A. WAHL,
Assistant Commissioner.

Mar. 10, 1971.

Republication of Marks Published for Opposition in the Official Gazettes (Trademark Section) of February 2, 9, 16, and 23 and March 2, 9, and 16, 1971

Since it appears that a substantial portion of the interested public did not receive copies of the OFFICIAL GAZETTE (Trademark Section) for the issues of February 2, 9, 16, and 23 and March 2, 9, and 16, 1971, in sufficient time to consider the filing of oppositions, all marks published for opposition in those issues are hereby declared to be republished as of March 23, 1971, pursuant to Section 12(a) of the Trademark Act of 1946, as amended. Opposition to those marks may be filed within the time after March 23, 1971, specified in Section 13 of the Statute or by Rules 2.101 and 2.102 of the Trademark Rules of Practice. Any oppositions to these marks received prior to this republication will be considered to have been timely filed.

WILLIAM E. SCHUYLER, Jr.,
Commissioner of Patents.

Feb. 25, 1971.

PATENT EXAMINING CORPS

R. A. WAHL, Assistant Commissioner
F. H. BRONAUGH, Deputy Assistant Commissioner

CONDITION OF PATENT APPLICATIONS AS OF MARCH 23, 1971

PATENT EXAMINING GROUPS

Actual
Filing Date
of Oldest
New Case
Awaiting
Action

CHEMICAL EXAMINING GROUPS

GENERAL CHEMISTRY AND PETROLEUM CHEMISTRY, GROUP 110—M. STERMAN, Director.....	10-13-69
Inorganic Compounds; Inorganic Compositions; Organo-Metal and Organo-Metalloid Chemistry; Metallurgy; Metal Stock; Electro Chemistry; Batteries; Hydrocarbons; Mineral Oil Technology; Lubricating Compositions; Gaseous Compositions; Fuel and Igniting Devices.	
GENERAL ORGANIC CHEMISTRY, GROUP 120—I. MARCUS, Director.....	4-30-69
Heterocyclic; Amides; Alkaloids; Azo; Sulfur; Misc. Esters; Carbohydrates; Herbicides; Poisons; Medicines; Cosmetics; Steroids; Oxo and Oxy; Quinones; Acids; Carboxylic Acid Esters; Acid Anhydrides; Acid Halides.	
HIGH POLYMER CHEMISTRY, PLASTICS AND MOLDING, GROUP 140—L. J. BERCOVITZ, Director.....	1-08-70
Synthetic Resins; Rubber; Proteins; Macromolecular Carbohydrates; Mixed Synthetic Resin Compositions; Synthetic Resins With Natural Polymers and Resins; Natural Resins; Reclaiming; Pore-Forming; Compositions (Part) e.g.: Coating; Molding; Ink; Adhesive and Abrading Compositions; Molding, Shaping, and Treating Processes.	
COATING AND LAMINATING, BLEACHING, DYEING AND PHOTOGRAPHY, GROUP 160—A. P. KENT, Director.....	12-02-69
Coating; Processes and Misc. Products; Laminating Methods and Apparatus; Stock Materials; Adhesive Bonding; Special Chemical Manufactures; Special Utility Compositions; Bleaching; Dyeing and Photography.	
SPECIALIZED CHEMICAL INDUSTRIES AND CHEMICAL ENGINEERING, GROUP 170—W. B. KNIGHT, Director.....	7-22-69
Fertilizers; Foods; Fermentation; Analytical Chemistry; Reactors; Sugar and Starch; Paper Making; Glass Manufacture; Gas; Heating and Illuminating; Cleaning Processes; Liquid Purification; Distillation; Preserving; Liquid and Solid Separation; Gas and Liquid Contact Apparatus; Refrigeration; Concentrative Evaporators; Mineral Oils Apparatus; Misc. Physical Processes.	

ELECTRICAL EXAMINING GROUPS

INDUSTRIAL ELECTRONICS AND RELATED ELEMENTS, GROUP 210—N. ANSHER, Director.....	6-18-70
Generation and Utilization; General Applications; Conversion and Distribution; Heating and Related Art Conductors; Switches; Miscellaneous.	
SECURITY, GROUP 220—R. L. CAMPBELL, Director.....	7-09-69
Ordinance, Firearms and Ammunition; Radar, Underwater Signalling, Directional Radio, Torpedoes, Seismic Exploring, Radio-Active Batteries; Nuclear Reactors, Powder Metallurgy, Rocket Fuels; Radio-Active Material.	
INFORMATION TRANSMISSION, STORAGE AND RETRIEVAL, GROUP 230—J. F. COUCH, Director.....	1-02-70
Communications; Multiplexing Techniques; Facsimile; Data Processing, Computation and Conversion; Storage Devices and Related Arts.	
ELECTRONIC COMPONENT SYSTEMS AND DEVICES, GROUP 240—W. L. CARLSON, Director.....	2-06-70
Semi-Conductor and Space Discharge Systems and Devices; Electronic Component Circuits; Wave Transmission Lines and Networks; Optics; Radiant Energy; Measuring.	
PHYSICS, GROUP 250—R. L. EVANS, Director.....	12-23-70
Photography; Sound and Lighting; Indicators and Optics; Measuring and Testing; Geometrical Instruments.	
DESIGNS, GROUP 290—R. L. CAMPBELL, Director.....	5-21-70
Industrial Arts; Household, Personal and Fine Arts.	

MECHANICAL EXAMINING GROUPS

HANDLING AND TRANSPORTING MEDIA, GROUP 310—A. BERLIN, Director.....	12-22-69
Conveyors; Hoists; Elevators; Article Handling Implements; Store Service; Sheet and Web Feeding; Dispensing; Fluid Sprinkling; Fire Extinguishers; Coin Handling; Check Controlled Apparatus; Classifying and Assorting Solids; Boats; Ships; Aeronautics; Motor and Land Vehicles and Appurtenances; Railways and Railway Equipment; Brakes; Rigid Flexible and Special Receptacles and Packages.	
MATERIAL SHAPING, ARTICLE MANUFACTURING, TOOLS, GROUP 320—D. J. STOCKING, Director.....	12-01-69
Manufacturing Processes, Assembling, Combined Machines, Special Article Making; Metal Deforming; Sheet Metal and Wire Working; Metal Fusion—Bonding, Metal Founding; Metallurgical Apparatus; Plastics Working Apparatus; Plastic Block and Earthenware Apparatus; Machine Tools for Shaping or Dividing; Work and Tool Holders Woodworking; Tools; Cutlery; Jacks.	
AMUSEMENT, HUSBANDRY, PERSONAL TREATMENT, INFORMATION, GROUP 330—A. RUEGG, Director.....	11-14-69
Amusement and Exercising Devices; Projectors; Animal and Plant Husbandry; Butchering; Earth Working and Excavating; Fishing, etc.; Tobacco; Artificial Body Members; Dentistry; Jewelry; Surgery; Trolley; Printing; Typewriters; Stationery; Information Dissemination.	
HEAT, POWER AND FLUID ENGINEERING, GROUP 340—C. F. GAREAU, Director.....	4-06-70
Power Plants; Combustion Engines; Fluid Motors; Pumps; Turbines; Heat Generation and Exchange; Refrigeration; Ventilation; Drying; Vaporizing; Temperature and Humidity Regulation; Machine Elements; Power Transmission; Fluid Handling; Lubrication; Joint Packing.	
CONSTRUCTIONS, SUPPORTS, TEXTILES, CLEANING, GROUP 350—T. J. HICKEY, Director.....	1-06-70
Joints; Fasteners; Rod, Pipe and Electrical Connectors; Miscellaneous Hardware; Locks; Building Structures; Closure Operators; Bridges; Closures; Earth Engineering; Drilling; Mining; Furniture; Receptacles; Supports; Cabinet Structures; Centrifugal Separations; Cleaning; Coating; Pressing; Agitating; Foods; Textiles; Apparel and Shoes; Sewing Machines; Winding and Reeling.	

Expiration of patents: The patents within the range of numbers indicated below expire during April 1971, except those which may have expired earlier due to shortened terms under the provisions of Public Law 600, 79th Congress, approved August 8, 1946 (60 Stat. 940) and Public Law 619, 83rd Congress, approved August 23, 1954 (68 Stat. 764), or which may have had their terms curtailed by disclaimer under the provisions of 35 U.S.C. 263. Other patents, issued after the dates of the range of numbers indicated below, may have expired before the full term of 17 years for the same reasons, or have lapsed under the provisions of 35 U.S.C. 161.

Patents..... Numbers 2,673,978 to 2,677,128, inclusive
Plant Patents..... Numbers 1,267 to 1,273, inclusive

REISSUES

APRIL 6, 1971

Matter enclosed in heavy brackets appears in the original patent but forms no part of this reissue specification; matter printed in italics indicates additions made by reissue.

27,112

PHOTOGRAPHIC METHOD

Robert B. Eaves, Wayne, Pa., assignor to Photo Motion Corporation, Norristown, Pa.
Original No. 3,295,915, dated Jan. 3, 1967, Ser. No. 251,602, Jan. 15, 1963. Application for reissue Dec. 5, 1968, Ser. No. 786,499

Int. Cl. G03c 5/04

U.S. Cl. 96—27

5 Claims

Apparatus and method for photographic animation in which a multi-axis polarizing screen is provided with multiple images. Illumination through a selectively changing polarizing medium recreates the images in a selected manner to create the illusion of motion.

27,113

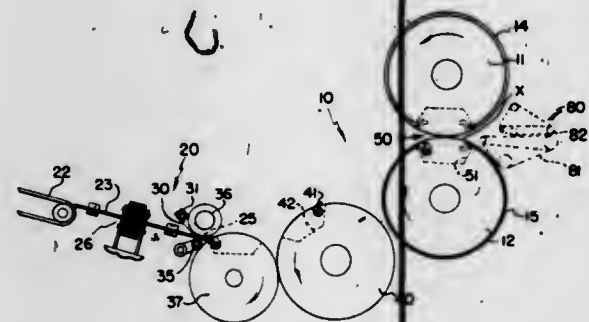
SHEET MATERIAL FORMING APPARATUS

Albert J. Sarka, Fairview Park, Ohio, assignor to Harris-Intertype Corporation, Cleveland, Ohio
Original No. 3,383,991, dated May 21, 1968, Ser. No. 512,576, Dec. 6, 1965. Application for reissue Feb. 19, 1970, Ser. No. 12,873

Int. Cl. B31b 1/14

U.S. Cl. 93—58.2

25 Claims



A pair of rotary cylinders define a material forming nip. The rotary cylinders have complementary die plates mounted thereon. The die plates have projecting means thereon which cooperate to simultaneously cut and crease sheet material as it is advanced therebetween. Means is

provided for conveying and introducing the sheet material in a registered condition into the deforming nip, and feeding members are provided on the die plates to assist in advancing the sheet material through the nip and maintain the sheets in their registered condition.

27,114

SELF-ADJUSTING MOVABLE JOINT DEVICE

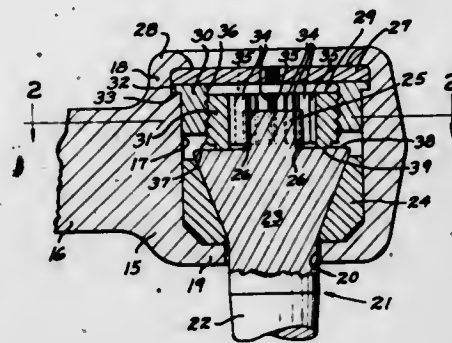
William A. Scheublein, Jr., Ballwin, and Louis P. Fister, St. Louis, Mo., assignors to Moog Industries, Inc., St. Louis, Mo.

Original No. 3,401,966, dated Sept. 17, 1968, Ser. No. 560,334, June 24, 1966. Application for reissue May 20, 1969, Ser. No. 830,904

Int. Cl. F16c 11/00

U.S. Cl. 287—93

9 Claims



A self adjusting wear compensating movable joint device having relatively rotatable movable housing and stud components, with the stud head operatively mounted in the housing and secured on its bearing seat by wear take-up adjusting means which is rendered operative upon relative rotation in one direction between the housing and the stud to take-up looseness of the stud head on its bearing and to become inoperative when the relative rotation between the stud and the housing might tend to undo the wear take-up, or when the wear take-up has been completed so as not to overload or strain the working components.

PLANT PATENTS

GRANTED APRIL 6, 1971

Illustrations for plant patents are usually in color and therefore, it is not practicable to reproduce the drawing.

3,037

ROSE PLANT

Patrick Dickson, Newtownards, Ireland, assignor to Jackson & Perkins Company, Newark, N.Y.

Filed May 2, 1969, Ser. No. 821,514

Int. Cl. A01h 5/00

U.S. Cl. Plt.—20

1 Claim

1. A new and distinct variety of rose plant of the hybrid tea class, substantially as herein shown and described, characterized particularly as to novelty by the unique combination of a vigorous, upright and well-branched plant habit, an abundance of dark green, glossy foliage which is relatively resistant to blackspot and powdery mildew, large, double flowers having from 60 to 70 petals and which open to a high-centered flower form, and a distinctive and attractive light red general color-tonality of the flowers, with the color being lighter in shade on the reverse sides of the petals than on their upper sides.

3,038

BARBERRY SHRUB

Hendrik den Ouden and Frits den Ouden, Boskoop, Netherlands, assignors to Monrovia Nursery Company, Azusa, Calif.

Filed Feb. 17, 1969, Ser. No. 800,010

Int. Cl. A01h 5/00

U.S. Cl. Plt.—58

1 Claim

1. A new and distinct variety of genus Berberis shrub, substantially as shown and described, characterized by a combination of features not found combined in previously known members of the genus, these features being compact globular branching, foliage of a green color as described, and a leaf structure and shape unusual in Berberis.

3,039

CHRYSANTHEMUM

Steven J. Borsh, North Hollywood, Calif.
(4547 1/2 Auhay Drive, Santa Barbara, Calif. 93105)
Filed Jan. 3, 1969, Ser. No. 788,968

Int. Cl. A01h 5/00

U.S. Cl. Plt.—78

1 Claim

1. A new variety of chrysanthemum plant substantially as shown and described, characterized by a peony-form blossom and compact growth.

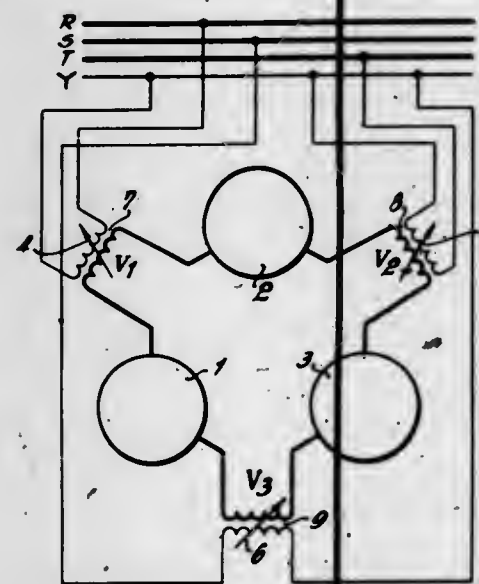
PATENTS

APRIL 6, 1971
ELECTRICAL

3,573,336
METHOD AND A CONTROL DEVICE FOR OPERATING A POLYPHASE ELECTRIC FURNACE
Werner Ibach, and Georg Herget, Knapsack near Cologne, Germany, assignors to Knapsack Aktiengesellschaft, Knapsack bei Cologne, Germany
Filed May 29, 1969, Ser. No. 829,036
Claims priority, application Germany, May 31, 1968, P 17 65 514.0
Int. Cl. F27d 1/10

U.S. Cl. 13-12

3 Claims



A control device for operating a three phase electric reduction furnace includes a two-point controller responding to departures of the furnace power actual values from the furnace power nominal values for obtaining from an integral controller variations of the electrode current nominal values. Other two-point controllers compare the varied electrode current nominal values with the electrode current actual values and respond to departures of the varied electrode current nominal values from the electrode current actual values to provide adjustment signals for the output controls for corresponding phases of the furnace transformer. Differential controllers sense the differences between the actual currents flowing through the said electrode and the electrodes disposed nearest thereto on the two sides of it, and additional differential controllers activate the transformer output control drive in response to the adjustment signals for adjusting the furnace transformer phase which lies between the two electrodes having the least sensed current difference.

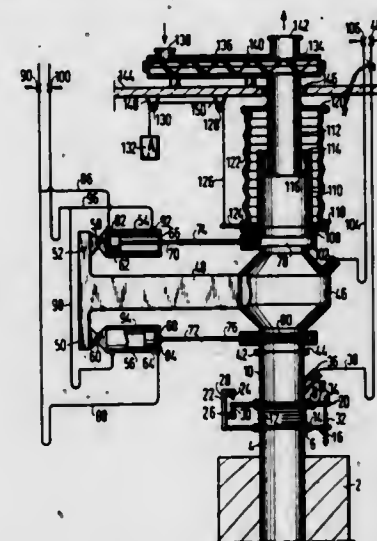
3,573,337
FEEDING ARRANGEMENT FOR AN ELECTRIC FURNACE HAVING A TUBULAR ELECTRODE
Ludwig Grimm; Otto Kick, Hart/Alz, and Siegfried Starke, Garching, Germany, assignors to Sueddeutsche Kalkstickstoffwerke Aktiengesellschaft, Trostberg, Germany
Filed Oct. 8, 1969, Ser. No. 864,768
Int. Cl. F27d 3/00, 3/14

U.S. Cl. 13-33

12 Claims

In an electric furnace in which particulate solid material is fed to the furnace hearth from a normally stationary feed pipe through an axially expandable and contractable conduit and through the bore of the electrode, a charging chamber is mounted between the conduit and the electrode and

provided with slide valves in its feeding and discharge portions respectively. Suitable operation of the valves

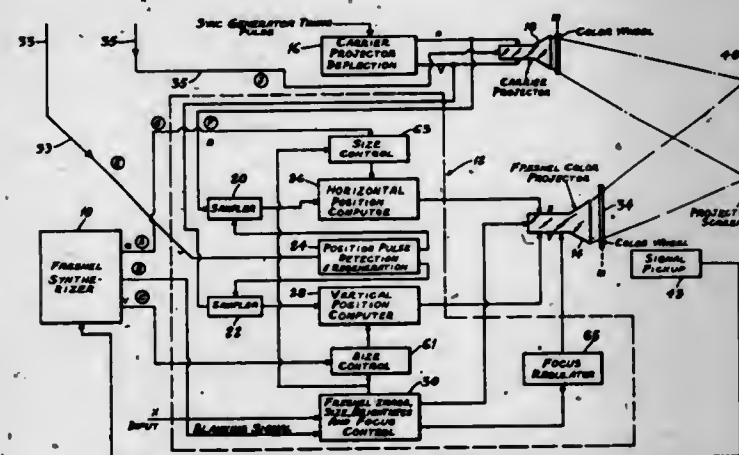


permits the material to be introduced into the furnace without release of significant amounts of furnace gases.

3,573,338
FRESNEL IMAGE COMPUTER
Dorsey Davidoff, Fort Lee, N.J., assignor to the United States of America as represented by the Secretary of the Navy
Filed Aug. 13, 1965, Ser. No. 479,674
Int. Cl. G09b 9/08

U.S. Cl. 35-10.2

3 Claims



A TV projection system for simulating on a common projector screen the appearance of an aircraft landing area and an associated Fresnel-type visual landing aid through the use of a TV projector for the landing area image and a beam writing projector for the landing aid image, the system utilizing a flying spot scanner TV image method and containing a transparency representative of the landing area and having a reflective pointer positioned in such a way with respect to the flying spot scanner horizontal and vertical sweep directions so that the point of the pointer is first touched by the flying spot in each frame, an optical pickup above the transparency to pick up reflected video from the arrow so that the first video pulse per frame represents the beam writing pattern center position on the flying spot scanner as well as on the TV projector, a sampling system to sample the TV yoke currents at the first video pulse, and two DC stabilized operational amplifiers, which may include yoke driver output stages, connected in such a way as to produce the desired beam writing pattern in the beam writing projector, properly positioned with respect to the TV

APRIL 6, 1971

ELECTRICAL

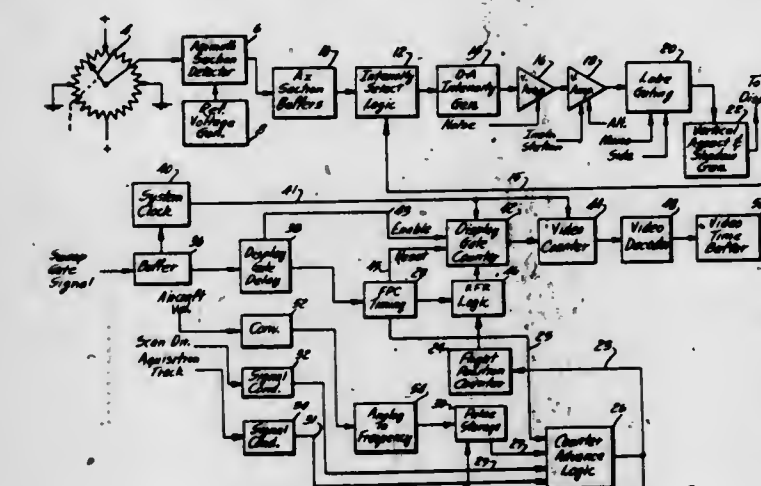
9

projector, when both images are projected on the common screen.

3,573,339
DIGITAL ELECTRONIC GROUND RETURN SIMULATOR
Robert D. Flower, Stow, and William A. Hinkle, Akron, Ohio, assignors to the United States of America as represented by the Secretary of the Navy
Filed July 24, 1969, Ser. No. 844,430
Int. Cl. G09b 9/00

U.S. Cl. 35-10.4

5 Claims

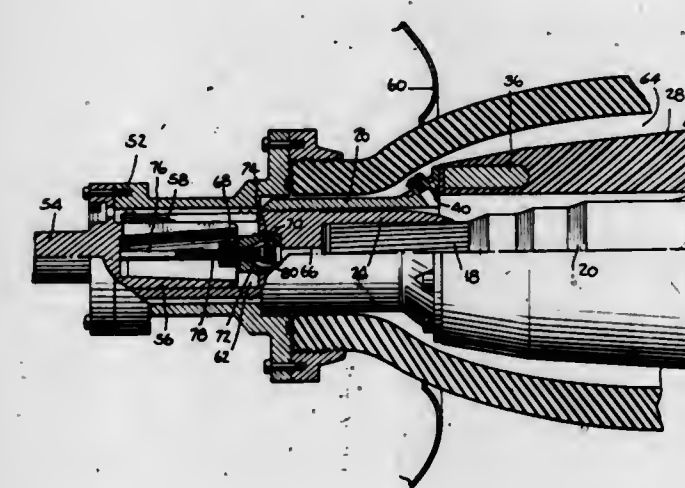


A radar simulator training device for training radar operators which utilizes the output of an antenna azimuth scan detector to select one of a plurality of stored programs of an azimuth sector of terrain. The selected program controls the gain of a variable gain amplifier in order to vary the ground return noise generator input to the amplifier. The output of the amplifier is then applied to the training display through various other circuitry.

3,573,340
SEALED FLUID CABLE END WITH RELEASABLE VALVE PARTICULARLY FOR TERMINAL DEVICES DISPOSED IN NON-ACCESSIBLE AMBIENTS AND METHOD OF INSTALLING SAME
Nicola Palmieri, and Vittorio Buroni, Milan, Italy, assignors to Pirelli Societa per Azioni, Milan, Italy
Filed Jan. 30, 1969, Ser. No. 795,287
Claims priority, application Italy, Jan. 10, 1968, 12,639A/68
Int. Cl. H02g 15/22

U.S. Cl. 174-20

20 Claims

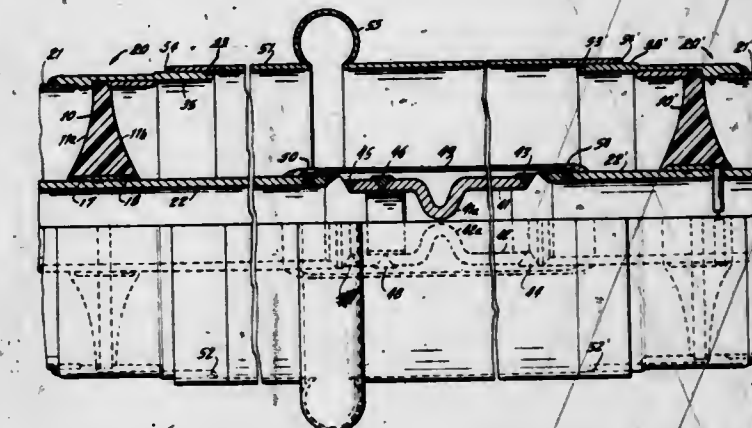


Oil-filled cable end and end terminal device therefor for entry into an accessory or apparatus of the closed type; means are provided enclosing cable end for preventing oil leakage from exposed insulation; means are also provided covering the oil duct in the cable end for normally preventing fluid flow therefrom, and for allowing fluid flow when the end terminal device is completely positioned within the accessory or apparatus of the closed type.

3,573,341
COMPRESSED-GAS INSULATED ELECTRICAL CONDUCTORS EMPLOYING EXPANDED TUBING COVER DESIGN
Howard W. Graybill, and Roy H. Albright, Greensburg, Pa., assignors to I-T-E Imperial Corporation, Philadelphia, Pa.
Filed Mar. 24, 1969, Ser. No. 809,889
Int. Cl. H01b 9/06; H02g 15/24

U.S. Cl. 174-22

11 Claims

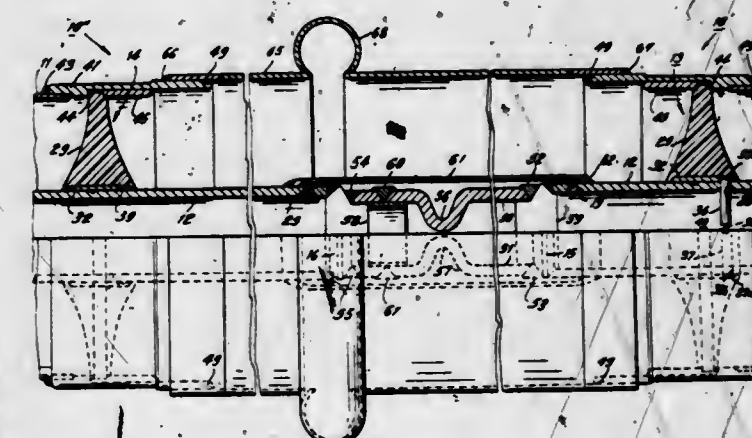


A compressed insulated conductor system comprised of a substantially cylindrical-shaped metallic enclosure and a substantially cylindrical-shaped conductor positioned within the enclosure and held concentric therewith by means of annular-shaped insulating spacers arranged at spaced intervals within and along the interior of the enclosure. The enclosure is filled with a compressed gas such as, for example, SF₆. The spacers, at opposite ends of each bus section are fixedly secured to the enclosure in such a manner as to seal the compressed gas within the interior of the enclosure. The enclosure at opposite ends thereof is so formed as to provide a bearing surface for one marginal edge of an end spacer, the opposite end of which is rigidly held in place by means of a duct cover end firmly secured within the enclosure and bearing against the second marginal surface of the end spacer. The spacer is provided with an annular-shaped groove around its exterior surface, which hollow space defined by the groove and the enclosure interior abutting thereagainst is filled with an epoxy material to firmly secure the spacer to the enclosure and to prevent any gaps between the adjacent surfaces of enclosure and end spacer, as well as preventing the escape of the compressed gas contained within the enclosure.

3,573,342
COMPRESSED-GAS-INSULATED HIGH VOLTAGE ELECTRICAL CONDUCTOR UTILIZING PREASSEMBLED LENGTHS JOINED BY FIELD-WELDED EXPANSION JOINTS
Howard W. Graybill, and Roy H. Albright, Greensburg, Pa., assignors to I-T-E Imperial Corporation, Philadelphia, Pa.
Filed Apr. 1, 1969, Ser. No. 812,016
Int. Cl. H01b 9/06; H02g 15/24

U.S. Cl. 174-22

18 Claims



A metal-enclosed high-voltage rating electrical conductor assembly of unitary design. Similar sections of such assembly

ies are positioned end-to-end to form a bus run and are joined together by yieldable duct cover assemblies and conductive connectors. Insulating spacers arranged at spaced intervals along each section are permanently secured within each section and arranged to prevent any egress of compressed gas confined to a section either during shipment upon installation or thereafter. The joining of adjacent sections may therefore be carried out without any concern being given to disturbing the compressed gas contained within each section or without any concern being given to the rigid mounting of the spacer elements.

3,573,343 ELECTRICAL APPARATUS FOR HAZARDOUS LOCATIONS

Woodrow A. De Smidt, and Edward H. Kuhn, Milwaukee, Wis., assignors to Allen-Bradley Company, Milwaukee, Wis.

Filed Mar. 10, 1969, Ser. No. 805,535
Int. Cl. H05k 5/10

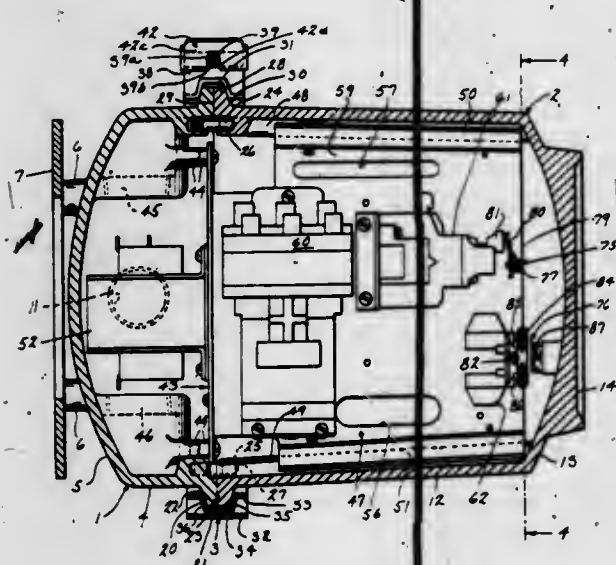
U.S. Cl. 174-52

8 Claims

U.S. Cl. 174-68.5

Int. Cl. H05k 1/10

10 Claims



An electrical apparatus enclosure made up of a base adapted for mounting on a panel and a cover to be assembled on the base portion. The base and cover flanges about the open ends are clamped together by a clamping ring. A transverse mounting plate is bolted inside the base and longitudinal mounting plate projects from the center of the transverse mounting plate to support electrical apparatus inside the cover. Control handles are mounted on the outer end of the cover to move actuators inside the cover, which operate the enclosed apparatus. Conduit ports are formed in the base.

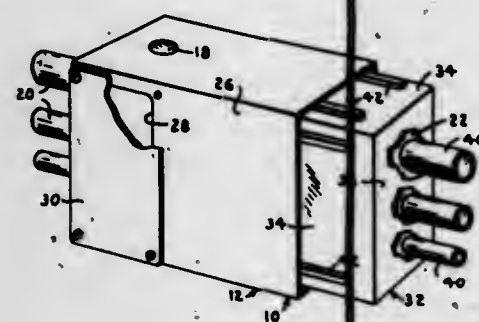
3,573,344 TELESCOPICALLY ADJUSTABLE JUNCTION BOX

Robert C. Snyder, 202 Tomahawk Trail, Pottawattamie Park, La Porte, Ind.

Filed Feb. 2, 1970, Ser. No. 007,548
Int. Cl. H02g 3/10

U.S. Cl. 174-57

8 Claims



A telescopically adjustable junction box for installation in conduit runs which expands and contracts with the support structure at the expansion joints thereof. This box comprises

an open end insert box telescopically movable in the open end of a cover box. Runners are provided on the exterior of the insert box for riding on the inside face of the cover box sides. Conduit holes are provided in the closed ends of the cover and insert boxes for inserting and connecting thereto the ends of the conduits. The electric wires span the space between the conduit pipe ends with sufficient slack for expansion take-up. The enlarged interior capacity provided in the boxes allows lateral wire movement during contraction, manual handling of the wires for pull through operation, and splice connections for tapping and distribution.

3,573,345 CONNECTION OF FLEXIBLE PRINTED CIRCUIT TO CONNECTOR BOARD AND METHOD OF MAKING SAME

Donald H. Devries, Mesa, and Thomas D. Umphrey, Chandler, Ariz., assignors to Rogers Corporation, Rogers, Conn.

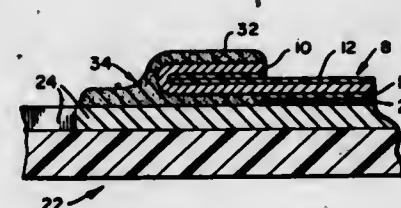
Filed May 23, 1969, Ser. No. 827,230
Int. Cl. H05k 1/10

8 Claims

U.S. Cl. 174-68.5

Int. Cl. H05k 1/10

10 Claims



A terminated multiconductor flat flexible printed circuit cable and its production are disclosed. The insulation is stripped from one side of one end of the cable to expose portions of the conductors, the cable is folded back on itself intermediate the exposed conductor portions, the cable is adhesively bonded to a connector board with the exposed conductors in registration with the connector terminations and the folded conductor portions are passed through a wave of solder.

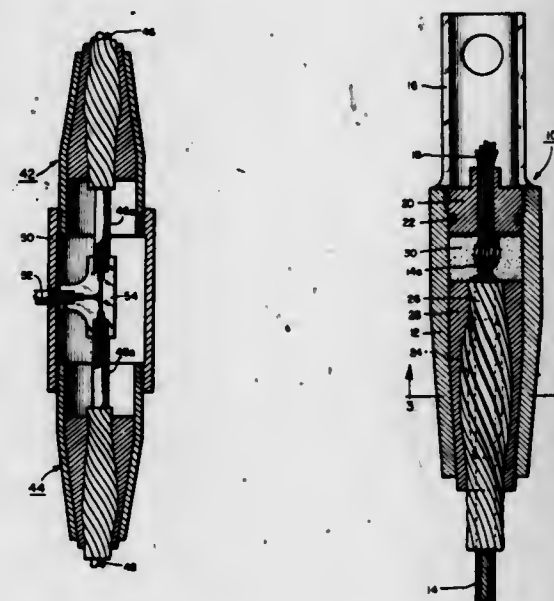
3,573,346 STRAIN RELIEF COUPLING

Harry A. Appleby, Cleveland, Ohio, assignor to Preformed Line Products Company, Cleveland, Ohio

Filed July 24, 1969, Ser. No. 844,394
Int. Cl. H02g 15/02, 15/08; F16g 1/100

U.S. Cl. 174-71

14 Claims



A strain relief coupling for a cable or the like comprises a housing having an elongated, tapered passageway extending therethrough. Means are adapted to be fixedly secured to the cable for defining a protuberance thereon of a diameter

intermediate that of the opposed ends of the housing passageway. The cable and its associated protuberance means are slidably received within the housing with the protuberance means securely seating against the tapered sidewalls of the housing passageway thereby to provide an effective securement of the cable to the housing. Other features and embodiments are disclosed.

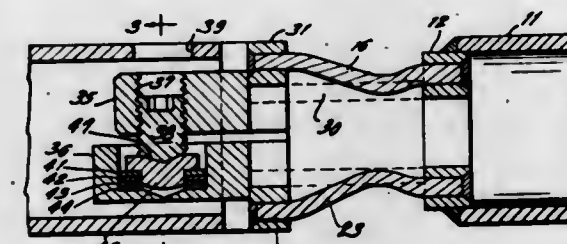
3,573,347 INTERNAL PRESSURE JOINT FOR HIGH VOLTAGE TUBULAR BUS

Otto Jensen, Plymouth, Bahamas, assignor to ITE Imperial Corporation, Philadelphia, Pa.

Filed Sept. 10, 1969, Ser. No. 856,769
Int. Cl. H02g 15/08

U.S. Cl. 174-94

8 Claims



Spaced pressure blocks are inserted into the end of a hollow cylindrical bus. A jackscrew, operated through an opening in the wall of the bus, presses the blocks away from one another and into the walls of the bus. The pressure blocks are connected to a prewelded disk which has flexible conductors extending therefrom.

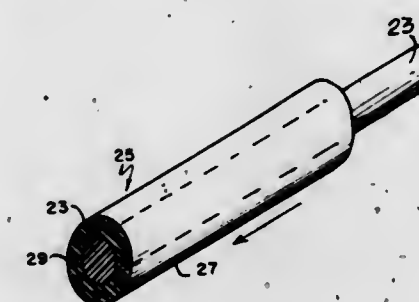
3,573,348 NEUTRALLY BUOYANT VERTICAL UNDERWATER CABLE

Edward M. Herrmann, 105 Round Bay Road, Severna Park, Md.

Filed Apr. 25, 1969, Ser. No. 819,298
Int. Cl. H01b 7/12

U.S. Cl. 174-101.5

7 Claims



A cable for vertical suspension underwater and essentially neutrally buoyant at all depths has a core of material of slightly less specific gravity than the water and a surrounding sleeve element of higher specific gravity than the water, the weight and/or the water/displacing relation of said core and sleeve elements being adjustable to provide neutral buoyancy of the cable at its various depths when vertically suspended under force of a weight.

3,573,349 ELECTRICAL SUSPENSION CABLE FOR FACILITATING THE DESCENT OF WELL TOOLS SUSPENDED THEREFROM THROUGH DEVIATED WELL BORES

William E. Bowers, Houston, Tex., assignor to Schlumberger Technology Corporation, New York, N.Y.

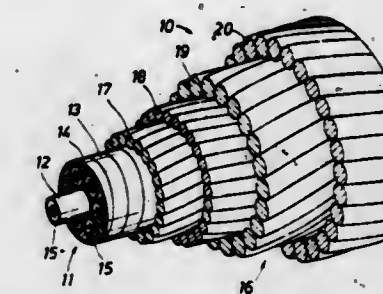
Filed May 2, 1969, Ser. No. 821,186
Int. Cl. H01b 7/22

U.S. Cl. 174-108

20 Claims

As one embodiment of the new and improved electrical logging cable disclosed herein, the cable is uniquely constructed to withstand limited axial compressive loading

without undue lateral bending. In this manner, by selectively moving the suspension cable downwardly from the surface, corresponding axial forces are developed in the lower portion



of the cable for assisting the continued descent of a logging tool dependently coupled thereto through substantially deviated well bore intervals.

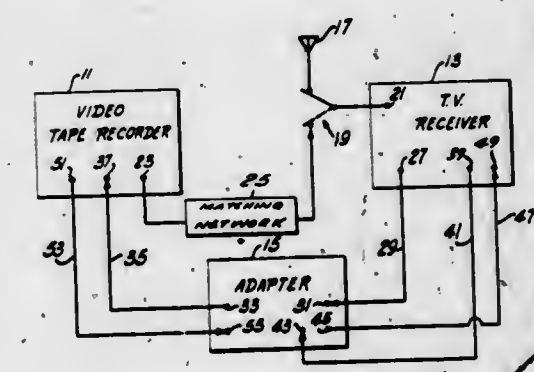
3,573,350 COLOR TELEVISION RECEIVER AND COLOR VIDEO TAPE RECORDER SYSTEM

Dong W. Rhee, Williamsville, N.Y., assignor to Sylvania Electric Products, Inc., Seneca Falls, N.Y.

Filed Sept. 28, 1967, Ser. No. 671,336
Int. Cl. H04n 9/02, 9/38, 5/78

U.S. Cl. 178-5.2

6 Claims



An adapter is connected between a color television receiver and a color video tape recorder. During the record operation, the signal taken from the video detector of the television receiver is fed to the adapter network which provides impedance matching between the receiver and the recorder, and the composite video signal is recorded in the color video tape recorder. The video tape recorder includes an RF oscillator such that during the playback cycle the video tape recorder output is the RF signal modulated by the recorded composite video signal. The output of the video tape recorder also includes a 3.58 mc. subcarrier signal synchronized with the color burst from the composite video signal, which is fed through the adapter to the color demodulator input of the television receiver. The subcarrier signal from the video tape recorder is used only to provide demodulation of the color signal in the television receiver. The video tape recorder subcarrier signal is generated in a manner which compensates for variations in speed of the video tape recorder.

3,573,351 COLOR BURST CIRCUIT FOR A COLOR TELEVISION RECEIVER

Roy M. Elwood, 6008 Moeller Road, Box 151, Fort Wayne, Ind.

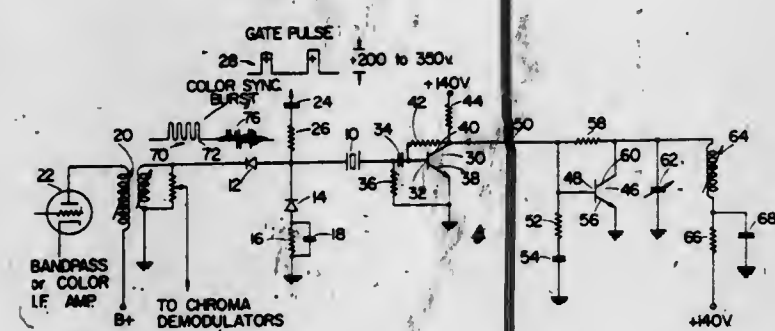
Filed Oct. 18, 1967, Ser. No. 676,282
Int. Cl. H04n 9/46

U.S. Cl. 178-5.4

10 Claims

A crystal which serves as a ringing circuit has coupled thereto by means of a diode a composite video signal which contains the color synchronizing burst. Connected to the crystal and the diode are gating pulses which are in time coincidence with the color burst. These gating pulses render the aforesaid diode conductive during the occurrence of only the color synchronizing burst, the diode being nonconductive during the intervals between the gating pulses.

A second diode is connected to the junction between the first diode and the crystal and is rendered nonconductive during the occurrence of the gating pulses but is conductive at all other times.



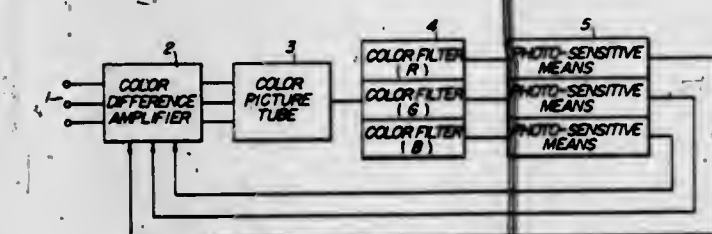
A limiting amplifier is connected to the crystal and contains circuitry which maintains the output signal thereof at a constant level even though the wave train from the crystal may vary in amplitude.

3,573,352 COLOR TONE ADJUSTMENT FOR COLOR TV RECEIVER

Yasuhiro Fujita, Kyoto, Japan, assignor to Matsushita Electronics Corporation, Osaka, Japan
Filed Apr. 8, 1968, Ser. No. 719,420
Claims priority, application Japan, Apr. 13, 1967, 42/23908
Int. Cl. H04n 9/32

U.S. Cl. 178-5.4

11 Claims



This specification discloses a color television receiver wherein the white balance controlling reference color illumination occurring in a portion of the fluorescent screen is passed through three primary-color filters so as to be separated into "red," "green" and "blue" light rays which are irradiated onto photosensitive elements so that variations in the filtered light rays are converted to electrical quantities to be fed back to the video circuit, thereby directly or indirectly controlling the color reproduction signal voltage to be applied to the color picture tube.

3,573,353 OPTICAL DETECTION SYSTEM AND METHOD WITH SPATIAL FILTERING

Frederick C. Henriques, Washington, D.C.; George B. Parrent, Jr., Carlisle, and Edmund L. Bouche, Lexington, Mass., assignors to Technical Operations, Incorporated, Burlington, Mass.

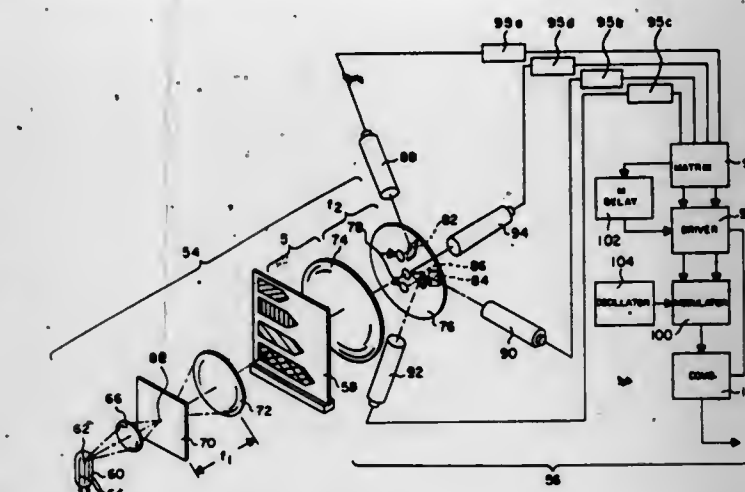
Filed Dec. 18, 1967, Ser. No. 691,567
Int. Cl. G02b 27/38; H04n 9/08

U.S. Cl. 178-5.4

13 Claims

This disclosure depicts method and apparatus for the optical detection at distinct detection planes of a plural number of distinct images from a record encoded with a plurality of superimposed images multiplied, respectively, with a unique spatially periodic modulation. More particularly, this disclosure depicts method and apparatus for optical image detection which is especially useful in color television film reproduction, simultaneous color separation photography, or the like. The depicted method and apparatus involves Fourier transforming a modulated record to separate in optical channels in transform space spatial frequency spectra of stored images encoded on the record, spatial filtering the transform pattern, and simultaneously detecting

distinct images carried in the separated optical channels. Cathode ray pickup tubes and photosensitive emulsions are used.



shown and described as alternative ways for separately photodetecting the images carried in the respective channels formed.

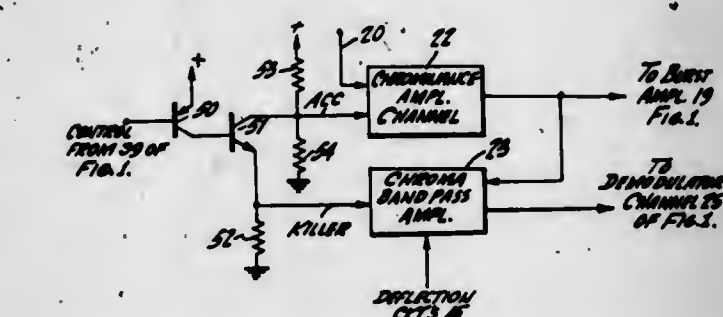
3,573,354 COLOR KILLER AND ACC CIRCUITS

Paul R. Ahrens, Indianapolis, Ind., assignor to RCA Corporation

Filed May 22, 1968, Ser. No. 731,037
Int. Cl. H04n 9/48

U.S. Cl. 178-5.4

11 Claims



Color killer action is provided in a color television receiver in response to the output of a burst amplitude detector, through use of a DC amplifier, which operates in a high gain mode for detector outputs below a threshold value, and in a reduced gain mode for detector outputs above the threshold value. The two-mode DC amplifier includes at least one transistor having separate output circuits coupled to its emitter and collector electrodes, with control information for ACC purposes taken from one output circuit, and kill control responsive to the other output circuit. When ACC action is in effect, interference from killer circuit is precluded or reduced to a tolerable degree as a result of amplifier mode shift. Optional arrangements are disclosed that permit setting a threshold for initiation of ACC action that is independent of killer threshold.

3,573,355 TELEVISION RECEIVER WITH APPARATUS FOR EFFECTING AND MAINTAINING OPTIMUM TUNING

Arthur A. Cavelos, North Syracuse, N.Y., assignor to General Electric Company

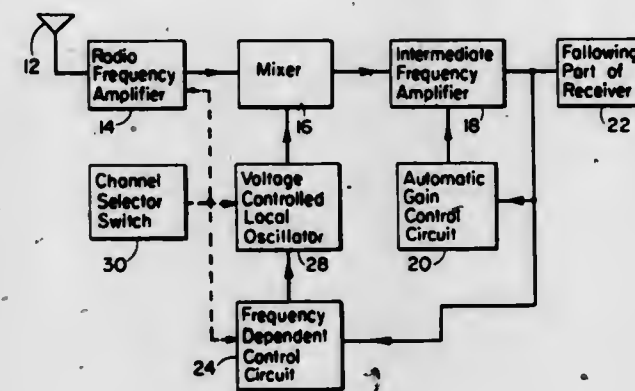
Filed Apr. 10, 1969, Ser. No. 814,949
Int. Cl. H04n 5/50; H04b 1/16, 1/68

U.S. Cl. 178-5.8

9 Claims

A television receiver includes an automatic frequency control (A.F.C.) circuit having a frequency dependent response characteristic which is separately adjustable by a user or repairman for each incoming radio frequency television channel. The modulated television video and sound carriers for any selected channel are reduced in frequency to the intermediate frequency (I.F.) range by a heterodyning operation, and the A.F.C. circuit automatically adjusts and maintains the composite I.F. television signal in a preferred

frequency relationship with respect to the pass band of an intermediate frequency amplifier. The receiver thus provides and maintains the best possible reception for each received field are combined and every other sync pulse is advanced in relation to the video signal such that corresponding portions



channel having regard to the particular local reception conditions prevailing at the receiver and the subjective preferences of the viewer.

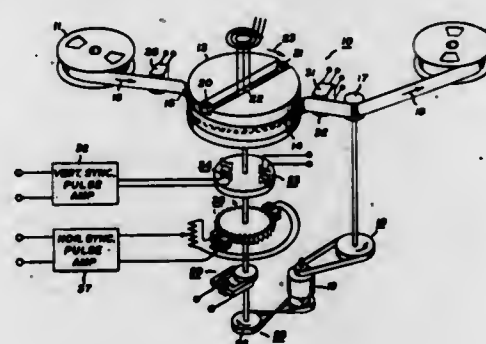
3,573,356 METHOD OF RECORDING SLOW SCAN VIDEO SIGNALS FOR REPRODUCTION AT NORMAL SCAN RATES

Francis G. Toce, Syracuse, N.Y., assignor to General Electric Company

Filed Feb. 9, 1968, Ser. No. 704,474
Int. Cl. H04n 5/78

U.S. Cl. 178-6.6SF

2 Claims



A television recording and reproducing technique for enabling generation and recording of video signals corresponding to images at slow scan rates and reproduction of video signals at normal scan rates without real time errors in the reconstructed images. As applied to a helical scan, skip-field, magnetic tape recorder, video signals are developed at one-half horizontal and vertical scan rates and successive fields of video are recorded in successive tracks on the magnetic tape at one-half the normal recording rate. To provide video for reconstruction of the images, each field of recorded video is scanned twice in succession at the normal rate.

3,573,357 SKIP-FIELD RECORDER WITH ELECTRONICALLY CONTROLLED STOP ACTION CAPABILITY

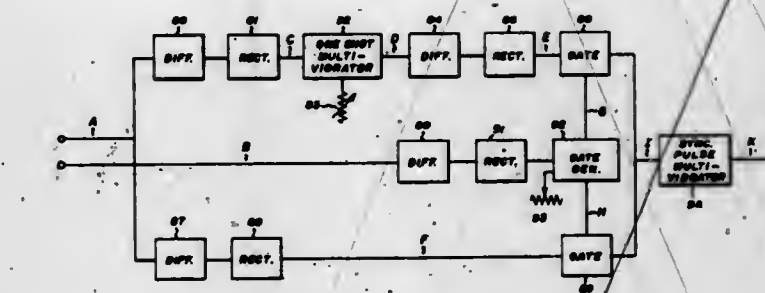
Francis G. Toce, Syracuse, N.Y., assignor to General Electric Company

Filed Apr. 24, 1968, Ser. No. 723,741
Int. Cl. H04m 1/22, 5/78

U.S. Cl. 178-6.6

3 Claims

A system for providing from a helical scan skip-field magnetic tape recorder composite video having iterative portions corresponding to a single frame to enable such frames to be displayed as stable still pictures on a monitor. With the magnetic tape stationary, the video signals developed from a pair of heads spaced apart by 180° plus the arc corresponding to linear tape travel in the time of one



of video in successive identical fields is in the same time relationship to its synchronizing pulse.

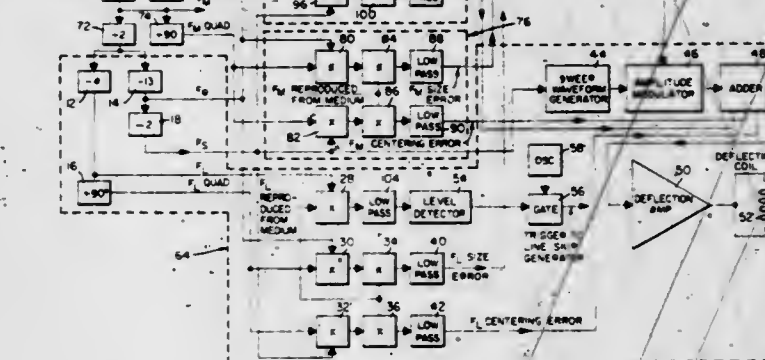
3,573,358 TIMEBASE STABILIZATION AND CORRECTION SYSTEM FOR ELECTRON BEAM APPARATUS

Bob V. Markevitch, Palo Alto, Calif., assignor to Ampex Corporation, Redwood City, Calif.

Filed July 17, 1968, Ser. No. 745,602
Int. Cl. G11b 5/04; H04n 3/18, 3/22

U.S. Cl. 178-6.6A

10 Claims



At least one crystal controlled pilot signal, previously recorded on a recording medium, is synchronously demodulated on playback by the same crystal controlled frequency to provide line direction information, and by a quadrature signal to provide basic information on the playback raster size and centering errors, which are then introduced to the sweep generating circuits of the electron beam apparatus for timebase correction of the reproduce signals.

3,573,359 VIDEO TAPE APPARATUS HAVING SYNC SIGNAL CONTROL DROPOUT COMPENSATION

Barrett Earl Guisinger, Deerfield, Ill., assignor to Ampex Corporation, Redwood City, Calif.

Filed May 6, 1968, Ser. No. 726,867
Int. Cl. G11b 5/04; H04n 5/78

U.S. Cl. 178-6.6

32 Claims

A recorded composite video signal having periodic dropout intervals is processed by a system which provides an indication of the position and duration of such dropout intervals and maintains the output signal at a fixed level during these intervals. Circuitry may be provided for inserting horizontal synchronizing pulses during each dropout interval. A system is also disclosed which detects the dropout intervals, and is employed in the above processing system as well as in a system for maintaining the stretch of the recording tape-medium constant by deriving a signal

3,573,367

CAMERA FOCUSING MEANS

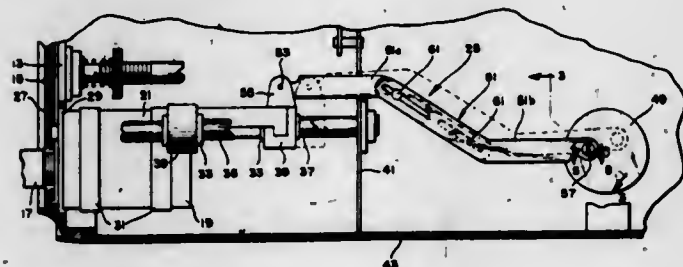
Mervin W. LaRue, Jr., Barrington, Ill., assignor to Ampex Corporation, Redwood City, Calif.

Filed Apr. 24, 1968, Ser. No. 723,688

Int. Cl. H04n 5/26

U.S. Cl. 178-7.92

13 Claims



An image tube position mechanism is provided for a television camera which includes a carrier for supporting the image tube for longitudinal movement toward or from a lens disposed immediately in front of the image tube as an operator manipulates a manually operable knob mounted on the camera. The knob is connected to the carrier by a focus control mechanism which achieves a similar change in focus with a given turning movement of the knob irrespective of whether or not the object is near or far with respect to the lens.

3,573,368

CATHODE RAY TUBE IMPLSION GUARD WITH BEESWAX ANNULAR METAL FRAME AND METAL BAND

Friedrich Kober, Aachen, Germany, assignor to U. S. Philips Corporation, New York, N.Y.

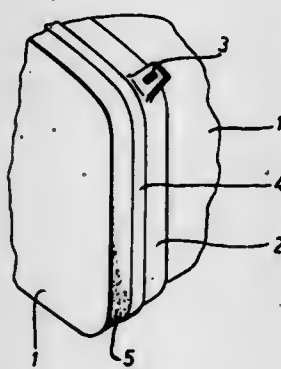
Filed Apr. 15, 1968, Ser. No. 721,486

Claims priority, application Germany, May 11, 1967, P42115

Int. Cl. H01j 29/82

U.S. Cl. 178-7.8

1 Claim



An implosion resistant cathode-ray tube for television display employing a first metal band surrounding and secured to the envelope adjacent the screen and a second metal, preferably steel, band around the first band and subjected to a large tensile stress. The second band glides over the first and to equalize tension at the corners, a lubricant is applied between the bands to reduce function between the bands. As a lubricant, beeswax is preferred.

3,573,369

KEY-CONTROLLED INDUCTIVE INPUT ARRANGEMENT

Gerhard Konig; Helmut Schmidt, and Klaus Singer, Villingen, Germany, assignors to Kienzle Apparate G.m.b.H., Villingen, Black Forest, Germany

Filed Mar. 18, 1968, Ser. No. 714,127

Claims priority, application Germany, Mar. 18, 1967, K61767

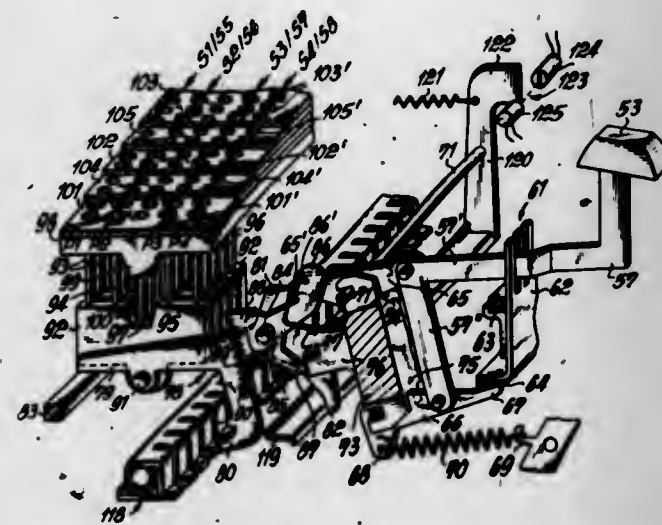
Int. Cl. H04l 15/12

U.S. Cl. 178-17

16 Claims

A primary circuit of a printed circuit plate is inductively coupled with a secondary circuit of a printed circuit plate

when a key-controlled core pin connects a coupling loop of the primary circuit with a coupling loop of the secondary circuit. The coupling loops of the secondary circuit are arranged in accordance with a binary code so that pulses at



the output terminals of the secondary circuit represent in coded form the information introduced into the primary circuit by operation of selected keys associated with alphanumerical information.

3,573,370

CIRCUIT ARRANGEMENT FOR THE TRANSMISSION OF TELEGRAPHY AND DATA SIGNALS

Hans Blauert, 3 Karntner-Platz, 8 Munich 21, and Ernst Schuhbauer, 6 Prochintalstr. 8 Munich 54, Germany

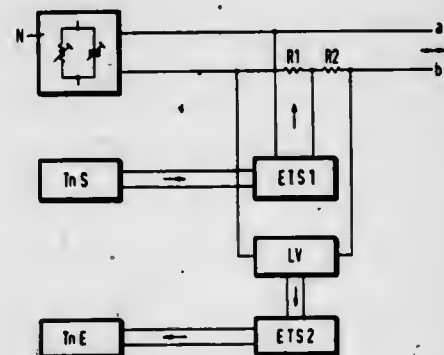
Filed Mar. 13, 1969, Ser. No. 807,773

Claims priority, application Germany, Mar. 20, 1968, 4138/68

Int. Cl. H04l 5/14, 25/08

U.S. Cl. 178-58

2 Claims



A circuit arrangement for the transmission of telegraphy and data signals at any speed over a line in a direct current transmission system wherein the internal resistances of the transmitters and receivers are mismatched low-ohmically to the line. At least one end station has an internal resistance that is further mismatched extremely low-ohmically to the line.

3,573,371

DIRECT-CURRENT DATA SET ARRANGED FOR POLAR SIGNALING AND FULL DUPLEX OPERATION

John T. Carbone, Englishtown, N.J., and George Parker, New York, N.Y., assignors to Bell Telephone Laboratories, Incorporated, Murray Hill, N.J.

Filed Dec. 23, 1968, Ser. No. 786,118

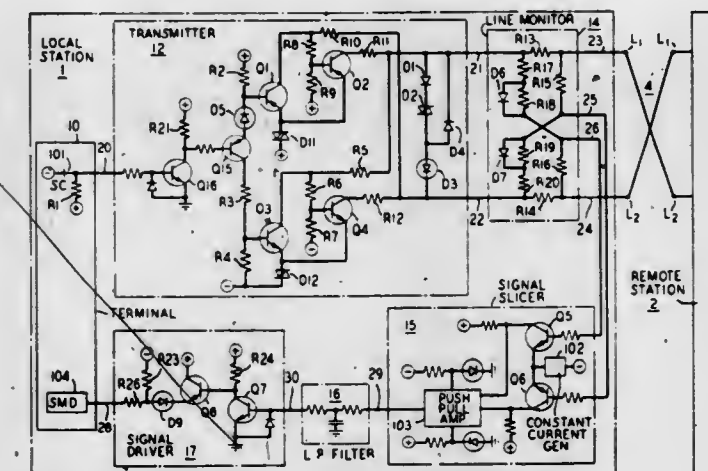
Int. Cl. H04l 5/14

U.S. Cl. 178-60

6 Claims

The direction and magnitude of the cumulative polar loop currents on a full duplex two-wire line are monitored by an impedance network which is connected across the signal battery transmitter, the line loop and the line monitor in a manner which enables the monitor to detect incoming marking and spacing currents. The network is arranged to

balance or cancel out ground or longitudinal currents that the line loop might apply across the monitor. The application of outgoing signal currents across the monitor is horizontally between the brackets with the aid of open finger guides instead of rings. Lead-in cable is run beneath the



compensated by diodes which alternatively remove or insert impedances in opposing branches of the network when marking or spacing signals are being locally generated.

3,573,372

KEYBOARD PACING MECHANISM

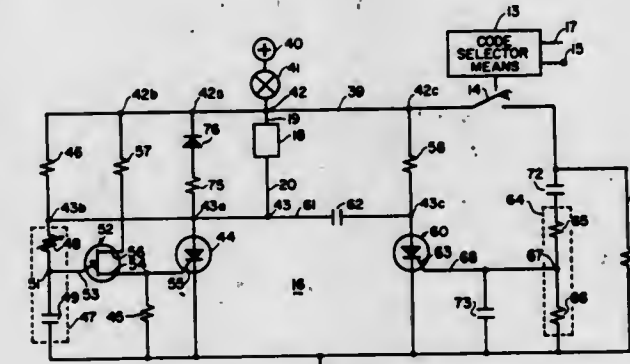
John P. Talone; Frederick H. Dear, and Hugh St. Lawrence Dannatt, Rochester, N.Y., assignors to The Slinger Company

Filed May 31, 1968, Ser. No. 733,531

Int. Cl. B41j 3/20, 29/69; H04l 7/18

U.S. Cl. 178-81

5 Claims



A keyboard pacing mechanism for a code transmitting machine having a code selecting keyboard wherein a key lock bail locks all the keys in a rest position whenever the operation of the keys exceeds a given maximum key rate. A pacing circuit responsive to the operation of the keys controls the operation of a solenoid connected to the key lock bail so that the bail locks all the keys in the rest position when the time period between keying operations is less than a given time period.

3,573,373

CABLE TERMINATING SYSTEM FOR KEY TELEPHONE CLOSETS

Francis J. Mullin, Baltimore; Raymond B. Ramsey, Towson, and Christian Scholly, Baltimore, Md., assignors to Bell Telephone Laboratories Incorporated, Murray Hill, N.J.

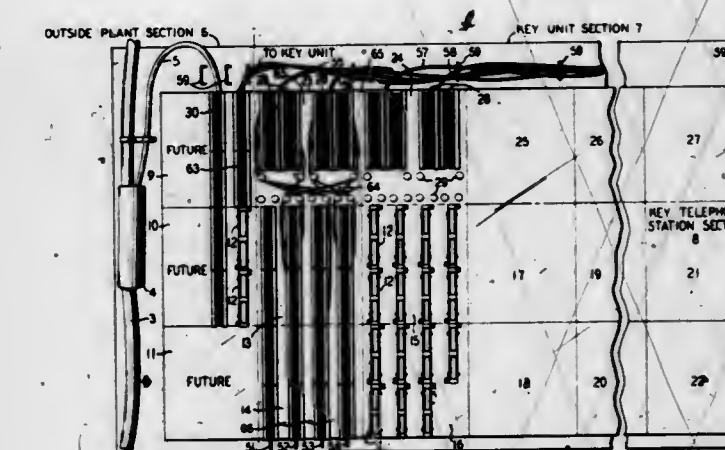
Filed Mar. 21, 1968, Ser. No. 714,994

Int. Cl. H04g 1/14

U.S. Cl. 179-98

4 Claims

A building-block approach to terminal arrangements in a key telephone station closet is described in which the connector blocks are mounted in functional groups. Each group is expandable within the closet by virtue of factory-provided boards equipped with prepositioned mounting brackets for the blocks. The board size and bracket spacing is such that jumper wires are led either vertically or



connector block brackets, leaving the space between blocks exclusively for jumper leads.

3,573,374

FORMANT VOCODER UTILIZING RESONATOR DAMPING

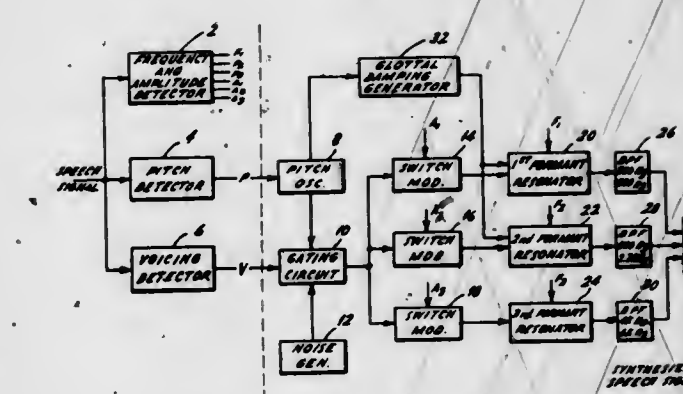
Louis R. Focht, Huntingdon Valley, and James M. Loe, Willow Grove, Pa., assignors to Philco-Ford Corporation, Philadelphia, Pa.

Filed Jan. 25, 1968, Ser. No. 700,542

Int. Cl. G10l 1/00, 1/04

U.S. Cl. 179-1

3 Claims



A formant vocoder comprising formant resonators and means for damping the resonators just prior to each successive pitch pulse. Damping is achieved by changing the Q of the resonators.

3,573,375

COMMUNICATIONS SYSTEMS CONTROLLER

Dan J. Kinzer, Orem, Utah

Filed Nov. 13, 1968, Ser. No. 775,321

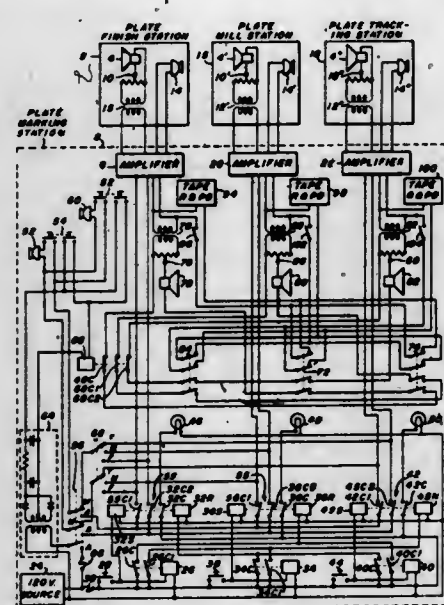
Int. Cl. H09m 9/04

U.S. Cl. 179-1

5 Claims

A central station controller for a multiple system intercommunicating device sets a latching relay to connect a central station microphone to a system determined by a selector. The selector also uses a tripping relay to release the

latching relays on all other systems. Provision is made to silence all but one central station loudspeaker and to record between customer video equipments. The video and audio paths are essentially independently established via separate



and later play back messages which would otherwise be heard on the silenced speaker.

3,573,376

SIGNALLING SYSTEM WITH UPPER AND LOWER CASE DESIGNATIONS

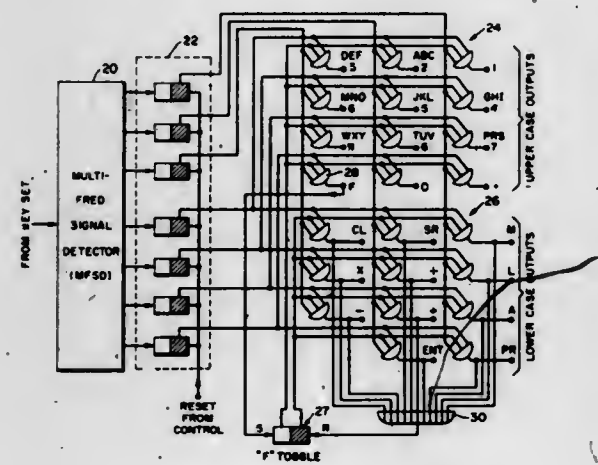
William F. Bartlett, East Rochester; Barrie Brightman, Webster; Uno Randmere, Rochester, and Richard Scott, Fairport, N.Y., assignors to Stromberg Carlson Corporation, Rochester, N.Y.

Division of Ser. No. 618,870, Feb. 27, 1967, abandoned.
Dec. 29, 1969, Ser. No. 888,221

Int. Cl. H04m 11/00

U.S. Cl. 179-2

2 Claims



A signalling system for remote operation of a calculator which requires 22 distinguishable input signals. A standard 12-key key set is used at the local station. One key is designated a shift key, and the central office equipment is arranged to direct the signal next following actuation of the shift key to a different input of the calculator from the one to which it would otherwise be directed.

3,573,377

EQUIPMENT TO COORDINATE ESTABLISHMENT OF AUDIO AND VIDEO CONNECTIONS THROUGH SWITCHING SYSTEMS

Harold P. Anderson, Lincroft, and James L. Simon, Middletown, N.J., assignors to Bell Telephone Laboratories, Incorporated, Murray Hill, N.J.

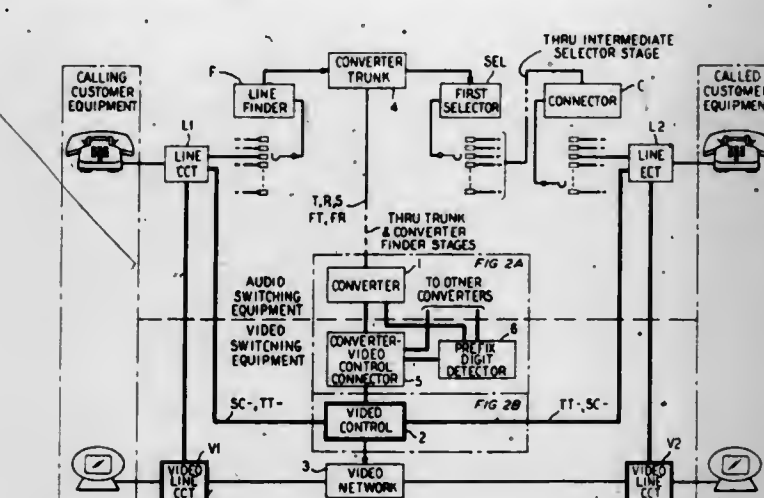
Filed Feb. 24, 1969, Ser. No. 801,575

Int. Cl. H04m 11/00; H04n 7/14

U.S. Cl. 179-2

22 Claims

A video switching system is provided for augmenting an existing audio switching system to extend video paths



switching system networks and equipment is included for coordinating and verifying each system connection to assure only matching audio and video paths are established.

3,573,378

TELEPHONE CALL TIMING CIRCUIT

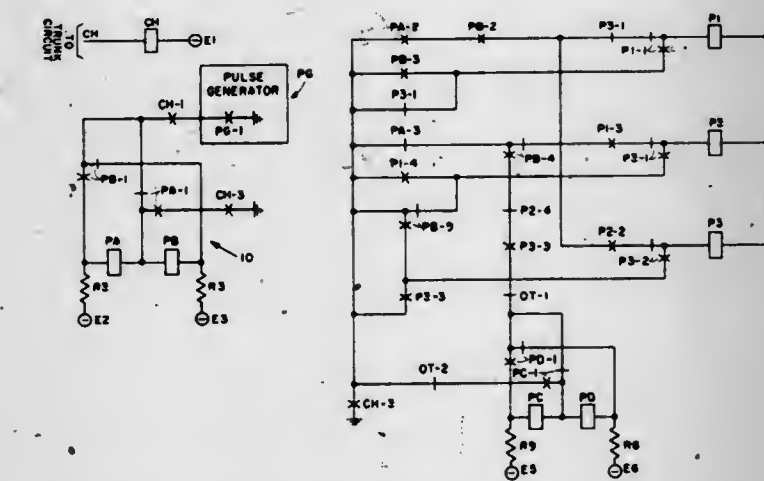
Derek Leyburn, St. Laurent, Quebec, and James S. Kyles, Pointe Claire, Quebec, Canada, assignors to The Bell Telephone Co. of Canada, Montreal, Quebec, Canada

Filed Apr. 11, 1968, Ser. No. 720,636

Int. Cl. H04m 15/18

U.S. Cl. 179-7.1

6 Claims



A timing circuit which includes a pulse generator for generating a train of timed pulses for the duration of a data call on a telephone line. A first counting circuit repeatedly counts a predetermined number of pulses and generates an output pulse at the end of each group of pulses. A second counting circuit counts a predetermined number of output pulses from the first counting circuit and generates a further output pulse which operates a relay to energize an overtime register and disable the second counting circuit. The overtime register subsequently registers every time the first pulse of a group of pulses is counted.

3,573,379

COMMUNICATIONS SYSTEM WITH FREQUENCY AND TIME DIVISION TECHNIQUES

Donald W. Schmitz, and Benjamin Chandler Shaw, Granada Hills, Calif., assignors to The Bendix Corporation

Filed Mar. 3, 1969, Ser. No. 803,867

Int. Cl. H04j 3/12

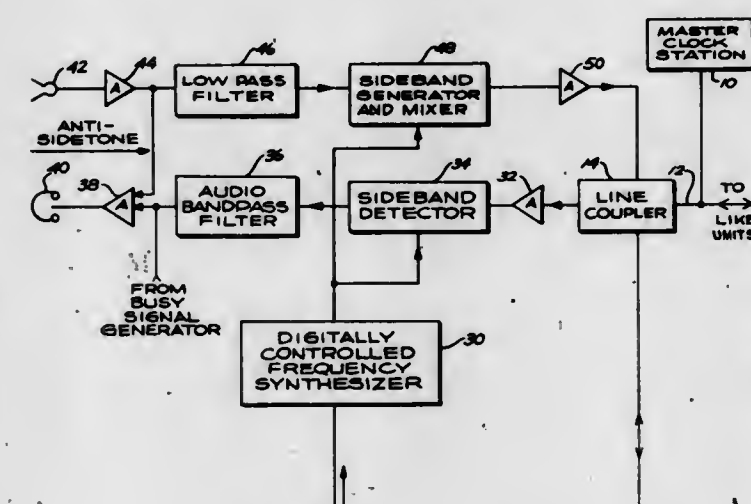
U.S. Cl. 179-15

17 Claims

A communication system for a substantial number of subscribers is shown having random access capabilities without the requirement for the usual central exchange. The system uses a frequency division scheme for separating the several communication information channels. The individual

subscriber units are interconnected as by means of one or more wires which are also connected to a master clock which continually generates time division digital information consisting of a plurality of pulses and unused time spaces (ones and zeros) including binary circuit code information and synchronizing pulses. A relatively limited band width is required for carrying this control information which is substantially displaced in frequency from the band containing the several communication information channels. These channels are generated by means of a frequency synthesizer

operations are substantially reduced by using multirate digital filters and a combined multichannel implementation of said



product modulators and a portion of said multirate digital filters.

3,573,381

TIME DIVISION SWITCHING SYSTEM

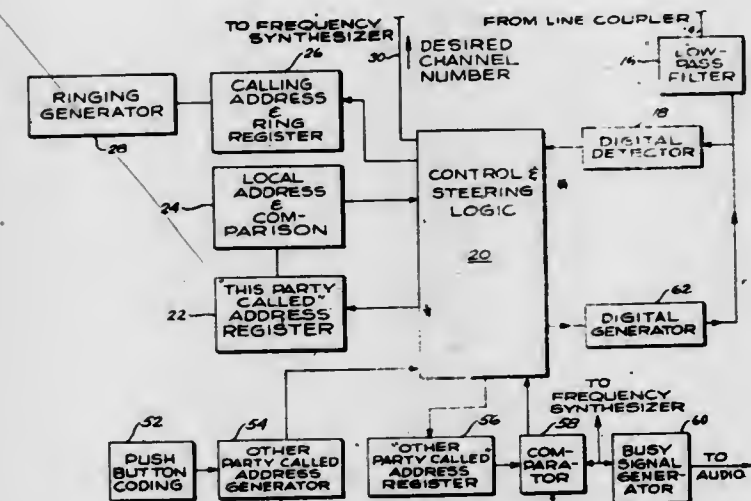
Michael J. Marcus, Cambridge, N.J., assignor to Bell Telephone Laboratories, Incorporated, Murray Hill, N.J.

Filed Mar. 26, 1969, Ser. No. 810,618

Int. Cl. H04j 3/16

U.S. Cl. 179-15

18 Claims



in each of the subscriber units, each of which continually monitors the digital control information to determine whether its address is being called and the circuit code representing the channel of the incoming call. Similarly, outgoing calls are initiated by picking up a headset at the subscriber unit which causes an unused channel to be selected, inserting its circuit code into the digital stream and causing the frequency synthesizer in responding to this code to generate the corresponding carrier frequency. The audio information is then converted to single side band (or other) modulation of the particular carrier frequency signal.

This application is directed to a time division communication system in which a switching network, comprising combination crosspoint switching and data storage devices, transposes data among various time channels during its transmission between multichannel, time multiplex highways.

3,573,382

A STEREOPHONIC RECEIVER MUTING MEANS WITH SUBSTITUTION OF A DC CIRCUIT FOR AN AC CIRCUIT

James H. Feit, Chicago, and Francis H. Hilbert, River Grove, Ill., assignors to Motorola Inc., Franklin Park, Ill.

Filed Feb. 6, 1969, Ser. No. 797,039

Int. Cl. H04h 5/00

U.S. Cl. 179-15

18 Claims

A silicon monolithic integrated circuit stereo multiplex receiver includes a gated symmetrical demodulator for providing the desired left and right audio output signals. A second demodulator is supplied with the same composite input signal supplied to the first demodulator, but substantially attenuated, with the second demodulator providing output signals 180° out of phase with the signal supplied by the first demodulator; and the outputs of the two demodulators are combined so that the crosstalk components

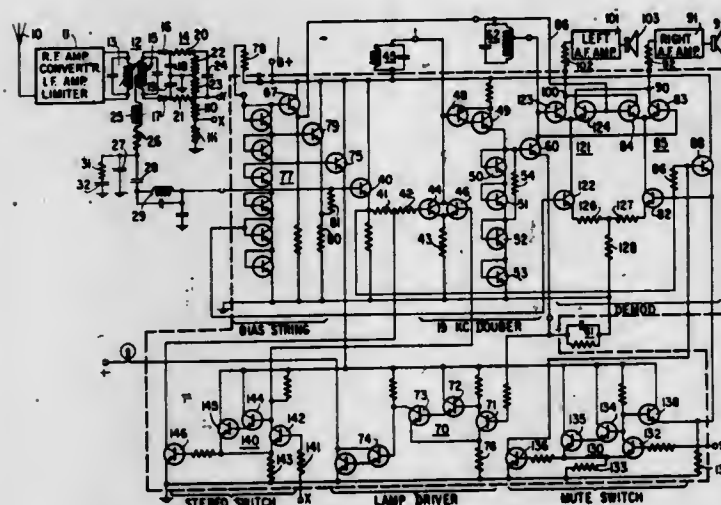
U.S. Cl. 179-15

20 Claims

A multichannel, frequency-division multiplex, single-sideband modulation system is realized by using digital filters and product modulators in lieu of conventional analog filters and product modulators. Extremely high multiplication rates resulting from a direct substitution of digital for analog

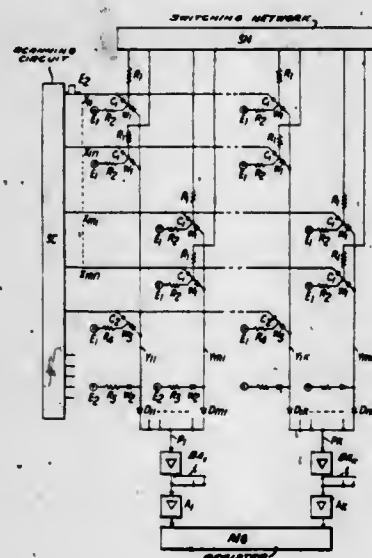
operations are substantially reduced by using multirate digital filters and a combined multichannel implementation of said

are effectively eliminated. A provision also is made for interstation audio muting and for stereo muting by the direct substitution of equivalent DC loads for the AC amplifiers normally responding to the signals, so that transientless muting is achieved. In order to control the muting and to provide a driver for the stereo indicator lamp, trigger circuits having predetermined hysteresis of operation are formed as part of the integrated circuit. Improved symmetrical drive for



the demodulator circuit is obtained by feeding the 19 k.c. pilot signal to the doubler circuit across a string of diodes which logarithmically compress signals that would tend to overdrive the doubler transistor amplifier. A filter at the emitter of the doubler amplifier establishes a DC level which is used to fire the indicator lamp trigger circuit to indicate stereo signals are being received and also serves to self-bias the doubler amplifier to further prevent its being overdriven.

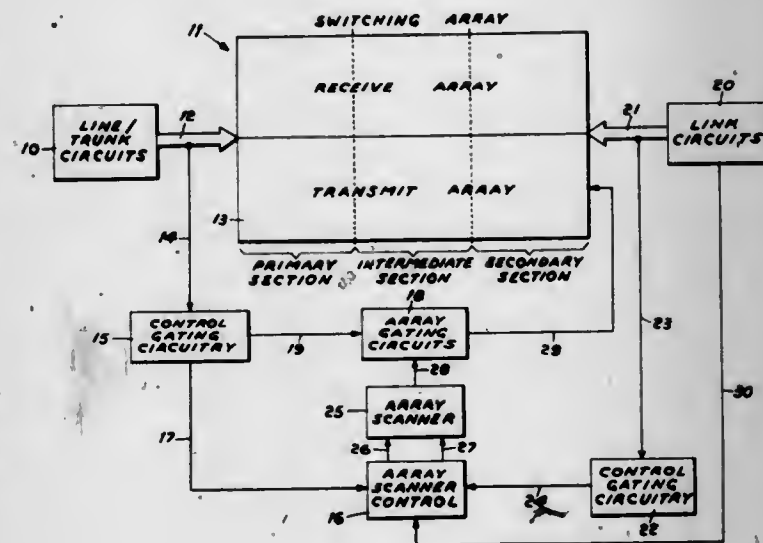
3,573,383
SCANNING ARRANGEMENT IN A TELEPHONE SWITCHING SYSTEM
Andre Ernest Antoon Lauwers, Muizen; Armand Marie Cecile Alexandre Vandeveld, Linden, and Gerard Richard Josef Lezy, Izegem, Belgium, assignors to International Standard Electric Corporation, New York, N.Y.
Filed Sept. 9, 1968, Ser. No. 758,216
Claims priority, application Netherlands, Sept. 22, 1967, 6,712,959
Int. Cl. H04g 3/48
U.S. Cl. 179-18 6 Claims



In a switching system, a scanning arrangement is provided to interrogate a plurality of links interconnecting a plurality of switching stages of the system for determining their busy and idle conditions. The scanning arrangement includes a plurality of diode-gating means responsive to the interrogating signals for applying the busy and idle status signals of the links to the register means of the system wherein each of said diode-gating means is coupled to the

scanning means and the register means and to a corresponding one of the plurality of links. Each of the diode gating means includes a DC potential source, a junction, first resistor coupling the DC potential source to the junction, second resistor coupling the junction to the corresponding link, a capacitor coupling the scanning means to the junction, and a diode being coupled to the junction and being poled to change from a nonconductive to conductive state in response to the change in the condition of the corresponding link from an idle to busy condition. The system is also provided with a plurality of biasing means, each means establishing a predetermined common bias potential level at the output of a selected number of the plurality of the diode-gating means.

3,573,384
ELECTRONIC CROSSPOINT SWITCHING ARRAY
Panagiotis N. Konidaris, River Edge, and Richard E. Buchner, Wayne, N.J., assignors to International Telephone and Telegraph Corporation, Nutley, N.J.
Filed Sept. 13, 1968, Ser. No. 759,670
Int. Cl. H04q 3/42, 3/495
U.S. Cl. 179-18 12 Claims

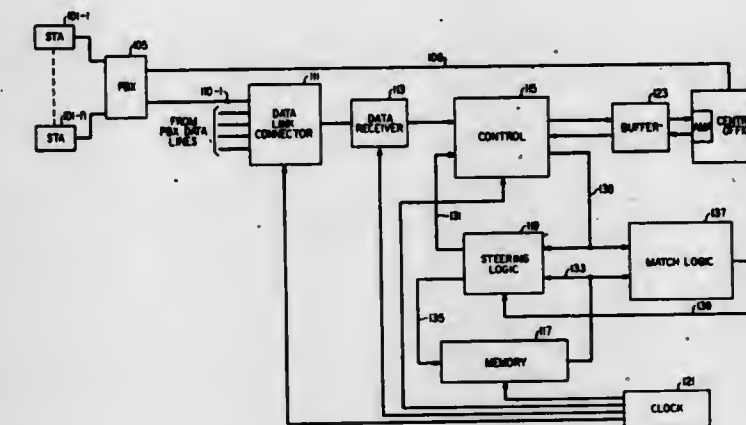


A crosspoint switching array of four-layer semiconductor devices in which complete connection through the array is established by selecting and firing only the minimum number of crosspoints necessary for that complete connection to be made. Activation of said minimum number of crosspoints is independent of the inherent rate effect characteristics of the crosspoints devices. The crosspoint switching array provides a selection of crosspoints based on availability rather than on the device characteristics and array support equipment.

3,573,385
OUTDIALING INFORMATION STORE FOR SWITCHING SYSTEM
Charles J. Provenzano, Staten Island, N.Y., and Richard A. Thompson, Hartford, Conn., assignors to Bell Telephone Laboratories, Incorporated, Murray Hill, N.J.
Filed Apr. 23, 1969, Ser. No. 818,563
Int. Cl. H04m 15/06
U.S. Cl. 179-18 16 Claims

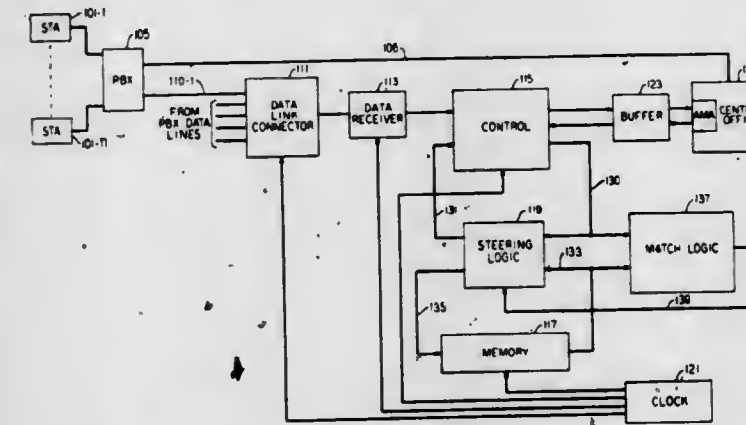
A telephone switching system is described in which a central office and a plurality of private branch exchanges are interconnected by trunks. A serially arranged recirculating memory associated with the central office receives a calling station and trunk identity message over a data link, and the station identity code is stored in one of a group of discrete storage areas in the memory. The station identity code is

preceded by the trunk code so that the calling station code, as addressed by the received trunk information, may be



inserted or retrieved during one complete scan of the recirculating memory.

3,573,386
OUTDIALING INFORMATION STORE FOR SWITCHING SYSTEM
Richard A. Thompson, Hartford, Conn., assignor to Bell Telephone Laboratories, Incorporated, Murray Hill, N.J.
Filed Apr. 23, 1969, Ser. No. 818,564
Int. Cl. H04m 15/06
U.S. Cl. 179-18 13 Claims

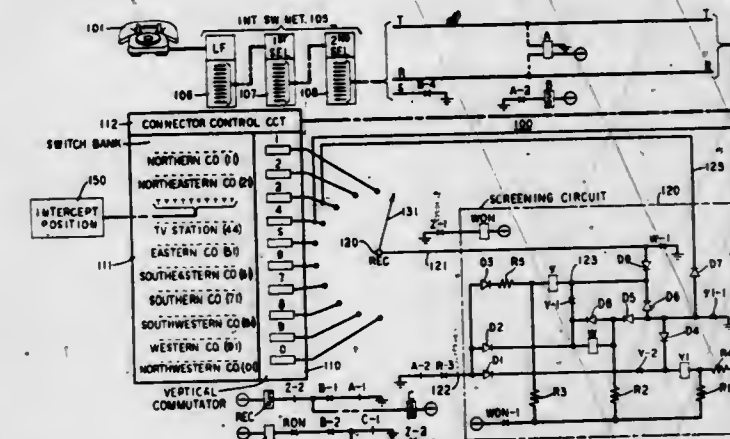


A telephone switching system is described in which a central office and a plurality of private branch exchanges are interconnected by trunks. A serially arranged recirculating memory associated with the central office receives a calling station and trunk identity message over a data link, and the exchange and station identity codes are stored in one of a group of discrete storage areas in the memory. Calling exchange and station identity codes as addressed by the received trunk identity code may then be inserted or retrieved from the memory.

3,573,387
SCREENING OF MISDIALED CALLS IN STEP-BY-STEP LOCAL LEVEL HUNTING CONNECTORS
Carl R. Nebe, Norwalk, and James T. Switzer, Walnut, Calif., assignors to American Telephone and Telegraph Company, New York, N.Y.
Filed May 6, 1969, Ser. No. 822,150
Int. Cl. H04m 3/52; H04q 3/38
U.S. Cl. 179-18 7 Claims

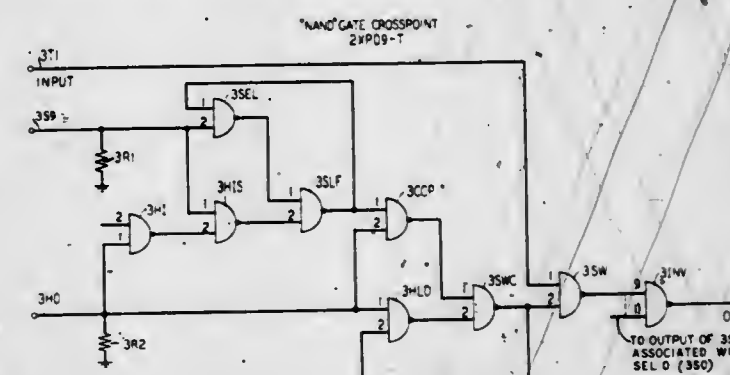
A circuit is disclosed for screening misdialled calls in a local level hunting connector which may have line appearances both for normal subscribers as well as for a subscriber receiving an especially high volume of calls. The normal subscribers appearing on the connector are assigned directory numbers ending in 1 while the high volume subscriber is assigned a specific "tens" digit. The connector is prevented from responding directly to any tens digit until

the first pulse of the units digit is received. The connector is then "unlocked" and permitted to hunt as it normally would. However, if a subsequent pulse is received, indicating a units digit other than 1, the normally grounded commutator seg-



ment corresponding to the tens digit becomes ungrounded and a commutator segment connected to an intercept position is grounded unless the tens digit is the specific one assigned to the high volume subscriber.

3,573,388
MARKER CONTROLLED ELECTRONIC CROSSPOINT SWITCHING SYSTEM
Clarence H. Dagnall, Jr., Westerville, Ohio, assignor to Bell Telephone Laboratories, Incorporated, Murray Hill, N.J.
Filed July 7, 1969, Ser. No. 839,215
Int. Cl. H04q 3/42
U.S. Cl. 179-18 11 Claims

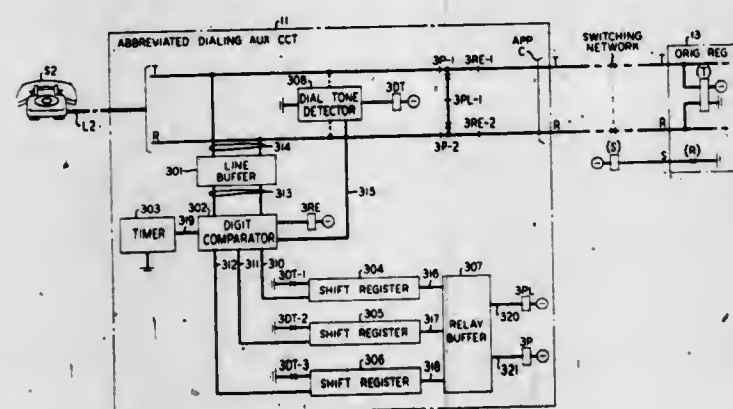


An electronic crosspoint matrix is arranged to operate in parallel with or as a substitute for a crossbar switch in a common control switching system. Each electronic crosspoint, which consists of an output gate controlled by a plurality of other gates, can be operated, held and released in the same manner as a conventional metallic crosspoint. High frequency data is switched through each crosspoint in response to a marking signal received on an associated select lead followed by receipt of a marking signal on an associated hold lead. Once operated, a crosspoint remains operated under control of the associated hold lead.

3,573,389
SWITCHING SYSTEM WITH INDIVIDUAL REGISTER CONTROL
Martin R. Greenstein, Villa Park, Ill., and Alfred Zarouni, Middletown, N.J., assignors to Bell Telephone Laboratories, Incorporated, Murray Hill, N.J.
Filed Dec. 18, 1968, Ser. No. 784,749
Int. Cl. H04m 3/54
U.S. Cl. 179-18 19 Claims

Special services, such as call transfer and abbreviated dialing, are provided by auxiliary circuits each uniquely associated with certain subscriber lines in a common control switching system. The auxiliary circuit is arranged with shift registers to recognize the dialing of a predetermined code and to respond thereto by releasing and reenabling the

common control switching equipment. On abbreviated dialing calls, the return of dial tone by the reenabled central office register enables the auxiliary circuit to outpulse the directory number of the desired station. On transfer calls, after dialing the access code, the subscriber primes the



transfer feature by dialing the directory number of the transfer station. This number is then simultaneously stored in the auxiliary circuit and in the reenabled central office register. In either situation the call then progresses to completion in the normal manner.

3,573,390

MAGNETIC TRANSDUCING SYSTEM

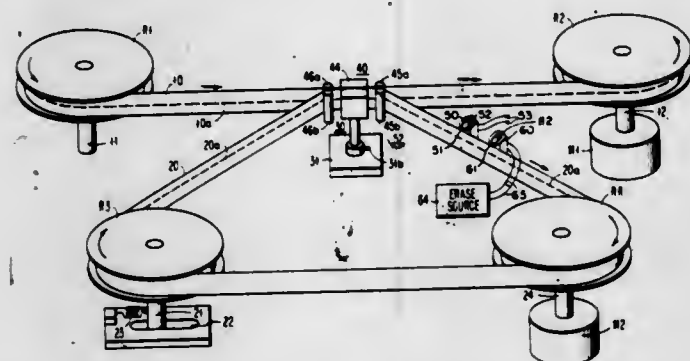
William T. Frost, Los Gatos, and Armand P. Neukermans, Stanford, Calif., assignors to International Business Machines Corporation, Armonk, N.Y.

Filed Jan. 15, 1969, Ser. No. 791,418

Int. Cl. G11b 5/86

U.S. Cl. 179—100.2E

8 Claims



A system for using a first magnetic head that develops flux lines transverse to the direction of a magnetic track for transposing a high density recording on the track by magnetic transfer to another tape which is arranged in a loop configuration. A second head with a relatively short magnetic gap is then utilized to read out this high density recording of the single track on the second tape. Thus, the head requirement for read out of the narrow track high density recording is essentially divided into two heads rather than being dependent upon a singular head having a single gap that is both short and narrow.

3,573,391

CHANNEL SWITCHING MEANS FOR A CARTRIDGE-TYPE TAPE RECORDER

Akira Harada, Tokyo, and Shogo Nakayama, Suwa-shi, Japan, assignors to Matsushita Electric Industrial Co., Ltd., Kadoma-shi, Osaka, Japan

Filed Oct. 23, 1967, Ser. No. 677,484

Claims priority, application Japan, Oct. 25, 1966, 41/71110; 41/71111; 41/1112; 41/71113

Int. Cl. G11b 21/08

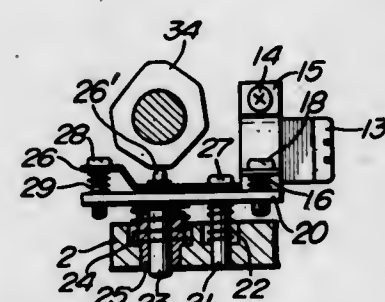
U.S. Cl. 179—100.2

4 Claims

A cartridge-type tape recorder, wherein channel selection can be positively carried out through providing a single magnetic head, the magnetic head being mounted on a support plate urged in one direction by means of a pin

provided perpendicularly with respect to the insert plane of the cartridge and an elastic member provided on a movable shaft fixed to the support plate, the support plate being maintained parallel to the plane of insertion of a tape cartridge, and a cam the peripheral surface of which is in rotational contact with the support plate at a position corresponding to the position of the movable shaft, thereby controlling the height of the magnetic head.

This specification discloses a channel switching means for a cartridge-type tape recorder using multichannel tape



having a plurality of tracks, wherein the channel selection can be positively carried out through the use of a single magnetic head and the head is mounted on a support plate adapted for parallel motion by means of a spring and a pin perpendicularly provided with respect to the insert plane of the cartridge and a channel switching cam is rotatably provided contacting the support plate at a position corresponding to the said spring and the height of the magnetic head is controlled by the cam, thereby effecting the channel switching.

3,573,392

SOLID STATE TAPE TRANSPORT CONTROL APPARATUS

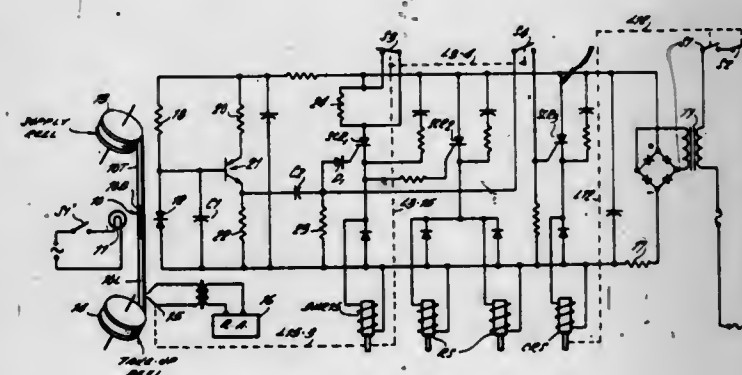
James R. Trammell, Parma Heights, Ohio, assignor to Scanfax Systems Corp., New York, N.Y.

Filed June 25, 1968, Ser. No. 739,863

Int. Cl. G11b 15/08

U.S. Cl. 179—100.2

3 Claims



An arrangement for controlling the recording head and the direction of magnetic tape movement in a tape recording machine is disclosed in which the translucency of the magnetic tape is monitored to detect the appearance of the leader and trailer portions of the magnetic tape.

3,573,393

TAPE HANDLING CONTROL ELEMENT AND SYSTEM FOR REVERSAL OF TAPE MOVEMENT DURING LOW SOUND LEVELS

James W. F. Blackie; Gregory J. Maleski, Sunnyvale; Chester W. Newell, San Jose, and Charles A. Vogel, Sunnyvale, Calif., assignors to Newell Industries, Inc., Sunnyvale, Calif.

Filed June 26, 1967, Ser. No. 648,665

Int. Cl. G11b 15/06, 15/18, 21/08

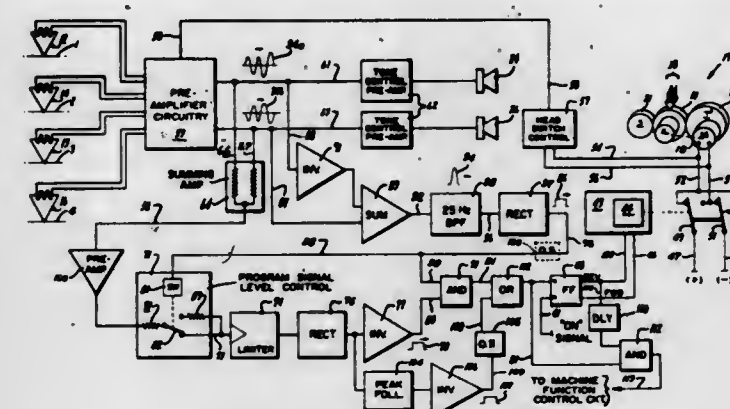
U.S. Cl. 179—100.2

4 Claims

A control system for handling elongated pliable recording tape where the tape carries an antiphase control signal which

preconditions the playback apparatus whereby reversal of the tape will occur in response to a subsequent predetermined

thereof to prevent possible spark or heat radiation from reaching the installation area by isolating the electrical elements while maintaining the speaker at substantially full magnetic efficiency.



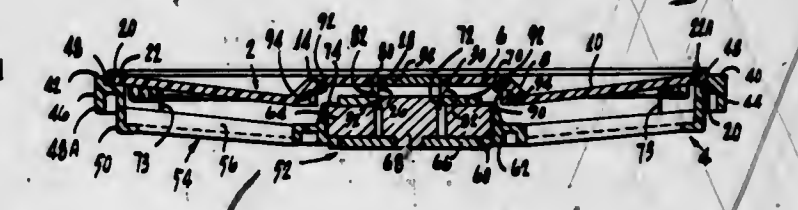
3,573,396

LOUDSPEAKER HAVING IMPROVED DIAPHRAGM
Herbert Schoengold, Mount Vernon, N.Y., assignor to Electronic Research Associates, Inc., Cedar Grove, N.J.
Continuation-in-part of application Ser. No. 342,827, Feb. 5, 1964, now Patent No. 3,351,719, and a continuation-in-part of 648,089, June 22, 1967. This application Nov. 17, 1967, Ser. No. 688,296

Int. Cl. H04r 7/02, 9/06

U.S. Cl. 179—115.5R

14 Claims



drop in signal level of the reproduced program being played back.

3,573,394

PIEZOELECTRIC MICROPHONE WITH BIASING MEANS

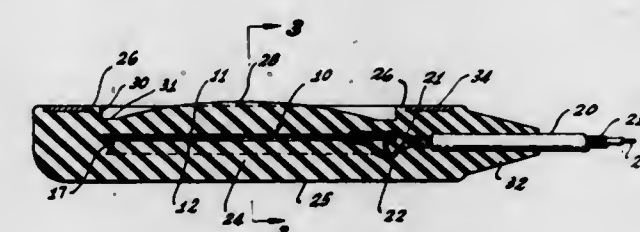
William S. Birnbaum, Fullerton, Calif., assignor to Industrial Scientific Research Corporation, Anaheim, Calif.

Filed Sept. 14, 1967, Ser. No. 667,736

Int. Cl. H04r 17/02

U.S. Cl. 128—2.05

6 Claims



A cardio-microphone comprising a piezoelectric crystal disc, mounted on a knife edge on a supporting ring, and embedded in a generally disc-shaped silicone rubber housing that has a dome on one side surrounded by an annular seating surface to be seated against the body of a patient. The dome projects beyond the seating surface, and when it and the annular seating surface engage the body of the patient, the crystal disc on the inside receives center pressure which forces it into a dish shape and thereby provides it with a preliminary bias.

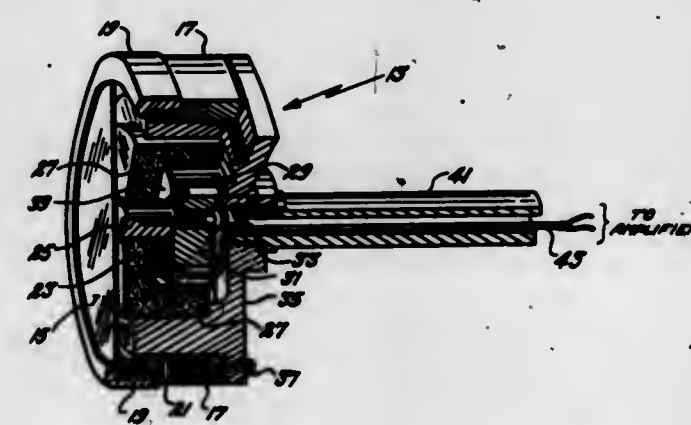
3,573,395

FIREPROOF ELECTRICAL ISOLATION SPEAKER
Henry B. Whitmore, Rte. 5, Box 369, San Antonio, Tex.
Filed July 10, 1968, Ser. No. 743,807

Int. Cl. H04r 13/02

U.S. Cl. 179—114

2 Claims



A fireproof loudspeaker having a nonflammable sealing member positioned over the current carrying elements

3,573,397

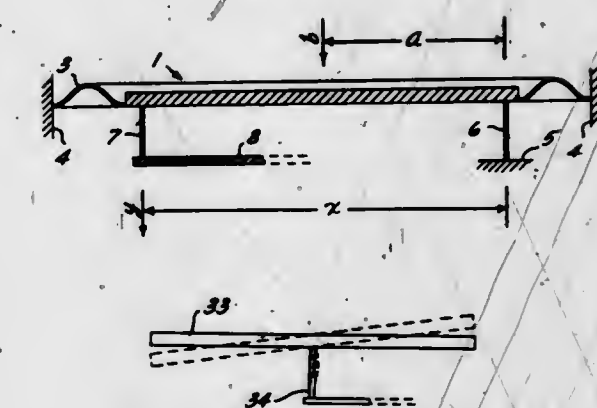
ACOUSTIC DIAPHRAGM AND TRANSLATING DEVICE UTILIZING SAME

Joseph A. Sawyer, and George C. Tibbetts, Camden, Maine, assignors to Tibbetts Industries, Inc., Camden, Maine
Filed May 16, 1967, Ser. No. 638,926

Int. Cl. H04r 7/20

U.S. Cl. 179—115

7 Claims



An acoustic diaphragm means for a translating device comprises a diaphragm portion and a surround therefor, a flexural pivot pin that extends substantially perpendicular to the diaphragm portion and attaches the diaphragm portion to the translating device near one edge of the diaphragm portion, and means for connecting another portion of the diaphragm portion to the vibratable element of the translating device, away from the center of pressure of the diaphragm means. The diaphragm utilized with a translating device, such as a magnetic type having a vibratable armature, provides a very high degree of acoustic compliance which

enables the armature to be made thicker, and also permits the diaphragm to be connected to the armature other than at the midpoint of the diaphragm so that the diaphragm may be of a size to more fully use the available area.

3,573,398

SOUND SUPPRESSION DEVICE FOR TELEPHONE
Thomas S. Kulka, 200 Film Building, 2108 Payne Ave.,
Cleveland, Ohio

Filed Jan. 31, 1968, Ser. No. 702,074

Int. Cl. H04m 1/14

U.S. Cl. 179-146

8 Claims



Sound suppression devices for suppressing the pick up and transmission of voices or noises in the vicinity of the telephone handset when the same is in a position hung up on the telephone base. In all of the various illustrated forms of the invention, means formed on or associated with the handset and/or base absorb voices in the vicinity and inhibit the same from reaching the transmitter section of the handset, without, however, in any way detracting from the normal use of the telephone.

3,573,399

DIRECTIONAL MICROPHONE

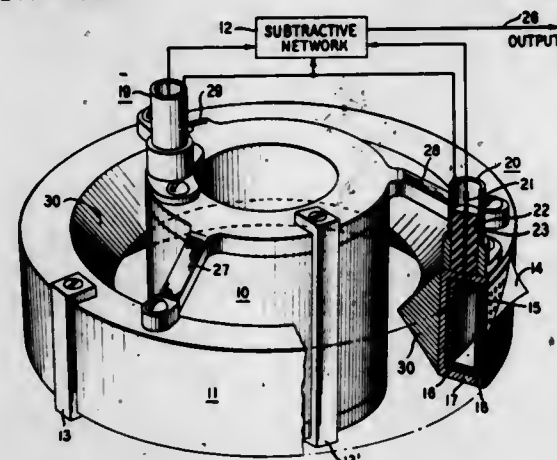
Manfred R. Schroeder, Mountainside; Gerhard M. Sessler, Summit, and James E. West, Plainfield, N.J., assignors to Bell Telephone Laboratories, Incorporated, Murray Hill, N.J.

Filed Aug. 14, 1968, Ser. No. 752,559

Int. Cl. H04r 1/40

U.S. Cl. 179-121

10 Claims



A directional microphone with toroidal or truncated toroidal sensitivity characteristics is constructed from a plurality of concentric transducer elements, the outputs of which are combined in accordance with a predetermined formula.

3,573,400

DIRECTIONAL MICROPHONE

Gerhard M. Sessler, Summit, and James E. West, Plainfield, N.J., assignors to Bell Telephone Laboratories, Inc., Murray Hill, N.J.

Filed Aug. 14, 1968, Ser. No. 752,560

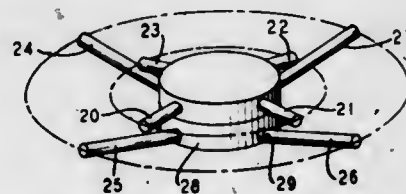
Int. Cl. H04r 1/32

U.S. Cl. 179-121

10 Claims

A directional microphone with toroidal sensitivity characteristics which can be selectively distorted is

constructed with an arrangement of acoustic tubes which sample an acoustic field at a number of separated points on an inner circle and at separated points on a concentric outer circle. The acoustic signals from the inner points are summed in a first acoustic cavity and the signals from the outer points are summed in a second cavity. The first and second cavities are separated by a foil electret or other electroacoustic



transducer which produces a signal proportional to the difference in sound pressure between them. Several of the acoustic tubes may be adjusted to alter the shape of the microphone's sensitivity pattern in the plane of maximum sensitivity and the entire acoustic system is selectively dimensioned to equalize the system's inherent frequency response.

3,573,401

MICROPHONE STAND

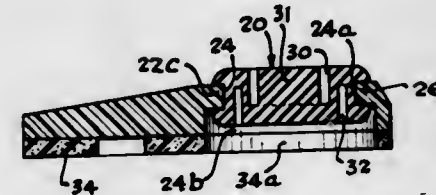
Thomas C. Lininger, New Buffalo, Mich., assignor to Electro-Voice, Incorporated, Buchanan, Mich.

Filed Feb. 21, 1968, Ser. No. 707,222

Int. Cl. H04m 1/04

U.S. Cl. 179-147

3 Claims



This application discloses a mount for a microphone in which a circular elastomeric body has an annular groove on one side to receive an annular portion of a microphone clamp assembly by simply pushing the annular portion of the assembly into the annular groove. The elastomeric body has a continuous groove in its periphery which engages the edge of a correspondingly dimensioned opening in the base of a microphone stand. A groove is also placed on the opposite side of the elastomeric body to improve shock and vibration isolation. The combination of the clamp assembly, elastomeric body, and the base provides the microphone stand.

3,573,402

BIDIRECTIONAL ADDITIVE AMPLIFIER

Charles W. Chambers, Jr., Amherst, Ohio, assignor to Lorain Products Corporation

Filed Mar. 25, 1969, Ser. No. 810,185

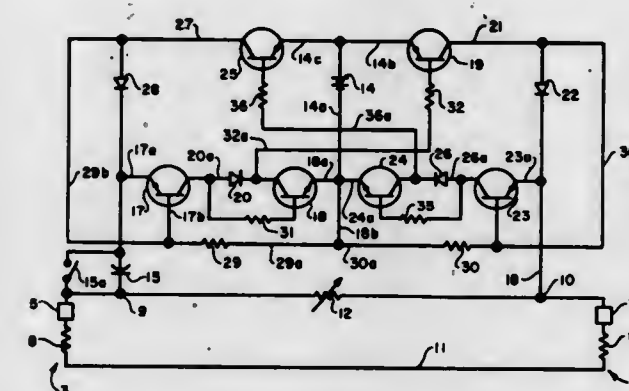
Int. Cl. H03f 3/62

U.S. Cl. 179-170

7 Claims

An electrical, two-terminal, bidirectional amplifier circuit which senses the direction of flow of a signal current through an ancillary source-load loop in which current flow may be bidirectional, to insert a boost voltage additively in series aiding relationship with the signal current irrespective of the direction of current flow in that source-load loop and then senses the instantaneous state of the signal current to control the magnitude of the added power. The amplifier is insensitive to the direction of transmitted intelligence through the source-load loop by the signal current and inserts

the boost voltage additively as required, in the face of the interchange of position of the sources and receivers of



connected with each conductor of the cable. A selector drum rotates under conductors on the contact board which are connected with the separate terminals of the contact board and the selector drum has contacts that pass across the conductors of the contact board to close circuits when not prevented from doing so by a belt that covers the drum. Perforations in the belt are located in positions to permit contact of different conductors and groups of conductors in accordance with a sequence which is programmed by the locations of the perforations in the belt.

3,573,405

MOTION DETECTION SWITCH

Kenneth R. Skinner, Bloomington, Ill., and David P. Clayton, Anderson, Ind., assignors to General Motors Corporation, Detroit, Mich.

Filed Nov. 18, 1969, Ser. No. 877,701

Int. Cl. H01h 35/40

U.S. Cl. 200-61.39

8 Claims

intelligence with respect to the amplifier terminals as, for instance, in telephone circuitry.

3,573,403

SKIP-A-DAY MECHANISM FOR ELECTRICAL TIMER SWITCH

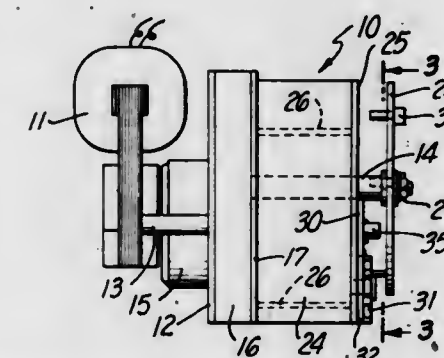
William M. Poschman, II, North Las Vegas, Nev., and Lorna D. Poschman

Filed Feb. 12, 1970, Ser. No. 010,878

Int. Cl. H01h 7/08, 43/10

U.S. Cl. 200-38

5 Claims



An electric switch and an electric motor with gear reduction unit for driving a switch actuating mechanism to close and open the switch at predetermined times each day. A skip-a-day mechanism for blocking switch operation on a selected day or days of the week. A pivoting plate yoke driven by the motor output wheel to actuate the switch. A pair of discs rotating together, with one disc being driven a step each day by the motor output wheel, and with the other disc controlling the position of a switch blocking lever by selectively positioned notches.

3,573,404

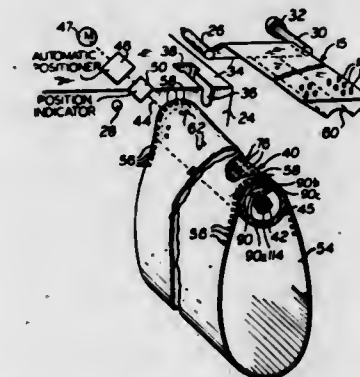
PROGRAMMABLE AUTOMATIC SELECTOR SWITCH
Daniel E. Robinson, 38 Orchard St., Metuchen, N.J.

Filed Apr. 17, 1969, Ser. No. 817,027

Int. Cl. H01h 43/08

U.S. Cl. 200-46

15 Claims



A selector switch for testing multiconductor cables, such as telephone cable. A contact board has a separate terminal

In a preferred form, a compact motion detecting switch mechanism for detecting movement of an automotive vehicle and which is operable to control operation of an electrical device or devices of the vehicle when the latter is moving and/or stopped is provided. The motion detecting switch mechanism comprises a housing means containing a liquid and which has a pumping chamber having an inlet for ingress of fluid and an outlet for egress of fluid, a rotary pump means disposed within the pumping chamber and which is adapted to be drivingly connected with a moving part of the vehicle for pumping liquid under pressure from the inlet toward the outlet, a switch means carried by the housing and which is adapted to be operatively connected with the electrical device or devices, a recirculating passage in the housing means for recirculating the liquid from the outlet toward the inlet of the pumping chamber, and a combined switch actuator and valve means slidably supported by the housing means for respectively controlling actuation and deactuation of the switch means and for controlling communication between the recirculating passage and the inlet of the pumping chamber. The combined switch actuator and valve means and housing of the switch mechanism are constructed and arranged such that the switch is actuated prior to the establishment of communication between the recirculating passage and the inlet of the pumping chamber.

3,573,406

CONTACT SENSOR ADAPTED TO BE ENGAGED BY TRAVELING ARTICLES OF ELECTRICALLY CONDUCTING MATERIAL

Charles J. Neuhoff, Upper Yoder Township, Cambria County, Pa., assignor to United States Steel Corporation

Filed Apr. 3, 1969, Ser. No. 813,266

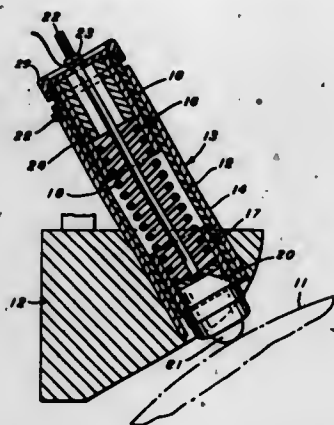
Int. Cl. H01h 3/16

U.S. Cl. 200-61.41

3 Claims

A contact sensor adapted to be engaged by traveling articles of electrically conducting material includes a tube of such material set in a grounded metal post and projecting therefrom so as to ensure such engagement. A sleeve of electrically insulating material secured in the tube extends outwardly beyond the end thereof opposite that which the articles approach. A spring-extended plunger anchored to sleeve has a head extending into the path of the articles for engagement thereby. A through bolt secures the plunger to

the sleeve and slides in a cap of insulating material secured over the end of the sleeve. The head is grounded on



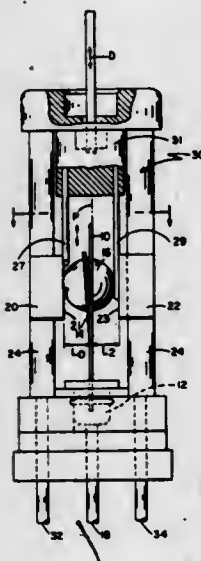
engagement by an approaching article and a circuit through the bolt is completed to energize a control relay or contactor.

3,573,407 SWITCHING

Lyndon Walkup Burch, Three River St Place, and Hadley Keyes Burch, Boston, Mass. (Pittsfield, Vermont 05762)
Continuation-in-part of application Ser. No. 567,633, July 25, 1966, now Patent No. 3,436,501. This application Oct. 10, 1968, Ser. No. 766,401
Int. Cl. H01h 15/18

U.S. Cl. 200-67

12 Claims

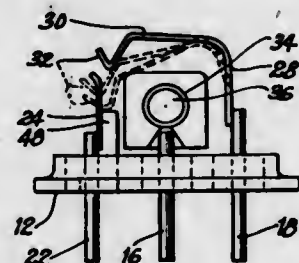


A snap-action switch comprising a snap member carrying a first electrical contact connected to a first electrical contact connected to a first electrical terminal which can be snapped through an unstable center position by pressure applied through the contact, a stationary second electrical contact connected to a second electrical terminal and engaged by the first contact when the snap member is in a first stable position, a wedging member mounted for sliding movement along the stationary second contact between it and the first contact upon application of an actuating force, this wedging member being sized to push the first contact away from the second contact by means of an electrically conducting portion maintaining electrical current flow between the first contact and the stationary contact, until the snap member snaps through its unstable center position, and means for snapping the member back to the second contact; and an actuating structure, for actuating a snap member as described between two stationary contacts, comprising a first wedging member which slides between the stationary second contact and the first contact on the snap member to push the first contact away until the snap member snaps over, and a second wedging member which slides between the stationary third contact and the first contact, with return actuator movement, to push the snap member contact back against the stationary second contact, these wedging portions being spaced apart from each other to provide clearance for the snap member contact in its snap movements. In a preferred embodiment, these wedging members are conductive wires.

3,573,408
SELF-LOCKING THREE POSITION PRESSURE OPERATED SWITCH CONSTRUCTION
Guy M. Farrell, Elmhurst, Ill., assignor to Chicago Switch, Inc., Chicago, Ill.
Filed Sept. 24, 1968, Ser. No. 762,054
Int. Cl. H01h 35/24

U.S. Cl. 200-81

2 Claims

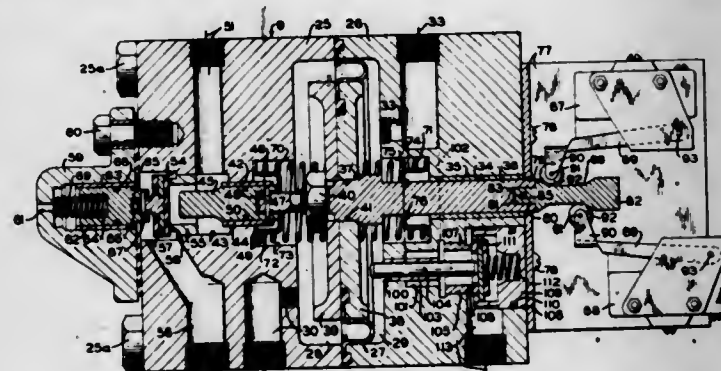


A pressure-operated switch comprising a movable contact for bridging separate contact portions and pressure applying means for engaging the movable contact. Under certain pressure conditions, the movable contact moves to a first position into engagement with an edge defined by a separate contact portion. A change in pressure will cause the movable contact to move away from this edge. In a preferred form of the invention, a movable contact defines a lip which latches onto an edge of the separate contact for retaining the movable contact in a contact-engaging position. When pressure is applied, the engagement between the lip and the edge is broken to provide an open position of the switch.

3,573,409
PRESSURE SWITCH WITH LINEARLY MOVABLE CAN-ACTUATING MEANS AND OVERSTRESS-RESPONSIVE SAFETY VALVES
William B. Jeffrey, Irwin, and Richard K. Frill, Pittsburgh, Pa., assignors to Westinghouse Air Brake Company, Wilmerding, Pa.
Filed July 1, 1968, Ser. No. 741,369
Int. Cl. H01h 35/34, 35/24

U.S. Cl. 200-81.4

2 Claims



A pneumatically operated master controller switch device embodies therein a pair of snap-acting switches for effecting respectively energization and deenergization of a pair of magnet valve devices via a corresponding one of a pair of wires accordingly as one or the other of the switch devices is actuated by a minimum of movement of a movable abutment in response to variations in the fluid pressure on one side thereof with respect to the fluid pressure present on the other side. Safety valve means are positioned at each end of movement of the moveable abutment, and are actuated to restore a pressure balance and return the abutment to the neutral position, thus preventing damage due to overstress.

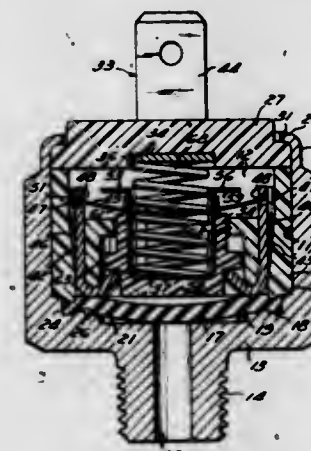
3,573,410
SNAP ACTION PRESSURE SENSITIVE SWITCH WITH SNAP DISC RESILIENTLY SUPPORTED BETWEEN LEGS OF A TERMINAL
Tadeusz Budzich, Moreland Hills, and Frederick D. Keady, Cleveland Heights, Ohio, assignors to The Weatherhead Company, Cleveland, Ohio
Filed Sept. 17, 1969, Ser. No. 858,832
Int. Cl. H01h 35/34, 13/38, 13/48

U.S. Cl. 200-83

11 Claims

A pressure-operated switch is disclosed, in which one switch contact is supported by an elongated bistable snap

element. The snap element is mounted on cantilever springs urging the ends of the element toward each other causing the element to bend with a single node. The spring loading is insufficient to produce multinode bending during movement of the snap element between its two positions. Several of the elements perform more than one function thereby reducing

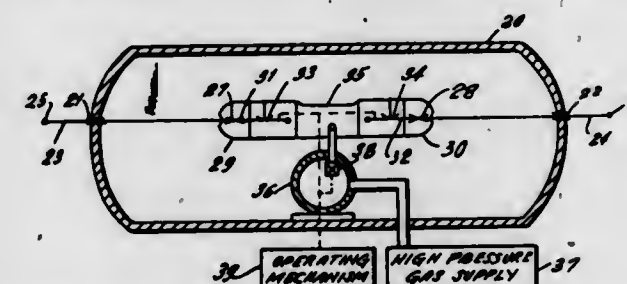


the number of elements required for the assembled device. For example, one terminal element functions to support the snap element, limit the plunger travel in one direction, and provide support for the diaphragm. Similarly, a spring functions to connect the other terminal to one contact element and to resiliently bias the plunger in one direction.

3,573,411
LIVE TANK HIGH VOLTAGE GAS CIRCUIT BREAKER
Daniel H. McKeough, Pasadena, Calif., assignor to I-T-E Imperial Corporation, Philadelphia, Pa.
Filed Aug. 15, 1968, Ser. No. 752,959
Int. Cl. H01h 33/80

U.S. Cl. 200-148

6 Claims



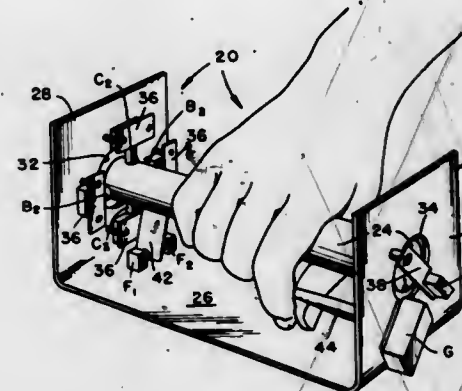
A high voltage gas blast circuit breaker wherein a relatively low-pressure chamber containing interrupter structures is mounted on a smaller relatively high-pressure chamber. The high- and low-pressure chambers are connected to one another through a valve which is mechanically connected to the interrupter contacts. The interrupter chambers may be colinear, or may be arranged in a V-type configuration to conserve lateral space for the low-pressure tank. The interrupters are arranged together as a three-phase interrupter with supporting insulator columns and bracing insulator columns transmitting gas and operating movement from ground positions.

3,573,412
NATURAL RESPONSE MANIPULATOR APPARATUS
Richard W. Uhrich, Pasadena, Calif. The United States of America as represented by the Secretary of the Navy.
Filed May 26, 1969, Ser. No. 827,596
Int. Cl. H01h 21/00

U.S. Cl. 200-157

8 Claims

A natural response manipulator apparatus which includes a controller and a responsive manipulator. The controller includes a support means; a generally tubular handle; and a plurality of switches which are mounted on the support means and which solely support the handle thereon so that the handle has floating action. The manipulator may include a simulated human arm which has its various components powered by a plurality of bidirectional power units. The power units may be controlled by the switches of the



movements which correspond to hand-control of the controller.

3,573,413
PUSHBUTTON ACTUATED SWITCH WITH FLUIDIC MEANS CREATING A BERNOULLI EFFECT AND RESULTING IN MOMENTARY ACTION
Nathaniel B. Kell, Indianapolis, Ind., assignor to General Motors Corporation, Detroit, Mich.
Filed Aug. 15, 1969, Ser. No. 850,388
Int. Cl. H01h 13/50

U.S. Cl. 200-160

4 Claims



A fluidic switch having a pair of separately pivotable spring separated arms each having a flat plate secured thereto. The arms are moved to a substantially parallel position, by a pushbutton, so that fluid introduced centrally through one of the plates creates a fluid flow attraction between the plates sufficient to overcome the spring load. A second spring moves the arms in unison, when the force on the pushbutton is released, until an electric contact on one arm is abutting a stationary electrical contact at which time both springs oppose and overcome the fluidic attraction thereby separating the plates and opening the electrical contacts.

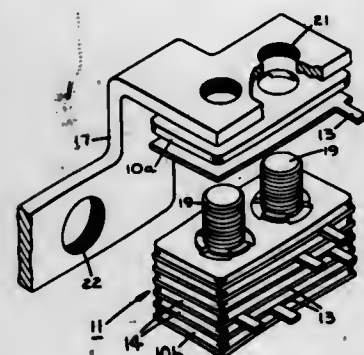
3,573,414
SWITCH PILE-UPS
James D. Brandlein, and Joseph D. Mathis, Indianapolis, Ind., assignors to Western Electric Company, Incorporated, New York, N.Y.
Filed Apr. 14, 1969, Ser. No. 815,710
Int. Cl. H01h 9/02

U.S. Cl. 200-166

6 Claims

A molded plastic insulator for use in switch pileups, has a plurality of arcuate, self-locking peripheral recesses and projections alternately surrounding the apertures formed

therein. The number and orientation of the recesses and projections are chosen in such a manner that even when they



surround two or more apertures, the insulators are symmetrical from an interlocking standpoint when stacked.

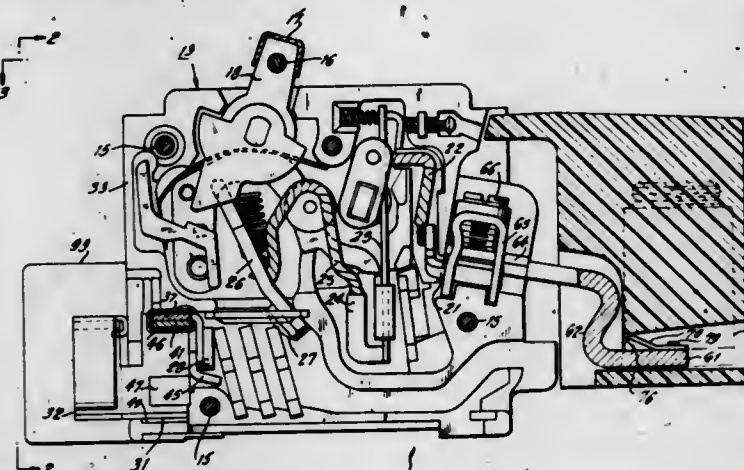
3,573,415

PARALLEL POLE CIRCUIT BREAKER

Carl E. Grytko, Haddon Heights, N.J., assignor to I-T-E Imperial Corporation, Philadelphia, Pa.
Filed Nov. 7, 1969, Ser. No. 874,776
Int. Cl. H01h 9/02

U.S. Cl. 200-168

10 Claims



Four single-pole circuit breakers are stacked side by side with an internal strap connecting line terminals of a first pair of adjacent circuit breakers and another internal strap connecting line terminals of a second adjacent pair of circuit breakers. A single line terminal stab is provided for each pair of circuit breakers, with each line terminal stab having a portion inside a circuit breaker housing and a portion extending externally thereof. The stabs are spaced apart by the center-to-center distance between adjacent pole units to engage differently phased cooperating stabs in a panelboard. The load terminals of each pair of circuit breakers are electrically connected and are provided with a single wire grip positioned in alignment with the abutting surfaces of the circuit breakers in each pair. The wire grip housing is secured by a snap-on-type connecting means and is disposed so as to prevent tampering with the load terminal connections of the individual circuit breakers.

3,573,416

METHOD AND DEVICE FOR SELF REGULATED WELDING IN THE MANUFACTURE OF LONGITUDINALLY WELDED METAL TUBES

Guido Drechsler, Reutlingen, Germany, assignor to Dalmine SPA, Milan, Italy, fractional part interest

Filed Sept. 24, 1969, Ser. No. 860,681

Claims priority, application Germany, Sept. 28, 1968, Nov. 9, 1968, Nov. 16, 1968, May 21, 1969, P 17 90 205.5, P 18 08 074.5, P 18 09 287.0, P 19 26 865.2

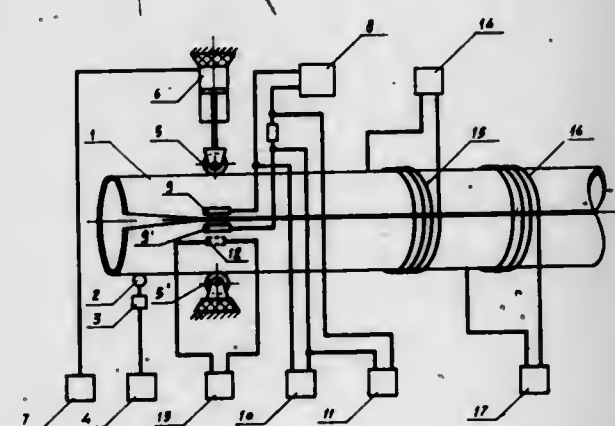
Int. Cl. B23k 13/02

U.S. Cl. 219-8.5

12 Claims

A method according to which the most important quantities in the manufacture of welded metal tubes, i.e. feeding speed of the metal band, upsetting pressure, intensity of the whole welding current, intensity of the so called back

current, applied voltage and temperature of the welding seam, are continuously electrically measured and the measured values are correlated to each other obtaining a plurality of quotients which are compared with prefixed



3,573,417

WELDING PACK AND METHOD OF WELDING SMALL WORK PIECES

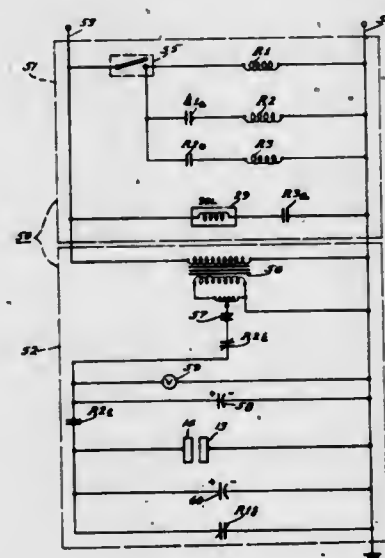
Walter J. Draving, Willow Grove; Robert C. Draving, Fort Washington, and Alexander Patton, Jr., Philadelphia, Pa., assignors to Micro-Miniature Parts Corporation, Willow Grove, Pa.

Filed Sept. 29, 1967, Ser. No. 671,798

Int. Cl. B23k 11/24

U.S. Cl. 219-57

6 Claims



A method and apparatus for effecting welds in small work pieces by electrical resistance butt welding. The circuit or pack employed includes an AC to DC converter, the variable DC output of which is connected to first capacitive means. Switch means are provided for connecting the capacitive means to the workpiece holders, and a second capacitive means shunts the holders and thereby the work pieces when they come into engagement. Just prior to engaging the work pieces in abutting end-to-end relation the first capacitive means is connected to the holders and therefore to the shunt capacitor whereby at least a portion of the charge held by the first capacitive means bleeds into the second capacitive means prior to the weld being effected.

**3,573,418
METHOD OF PRESERVING MECHANICAL PROPERTIES OF STEEL WIRE DURING SPOT WELDING**

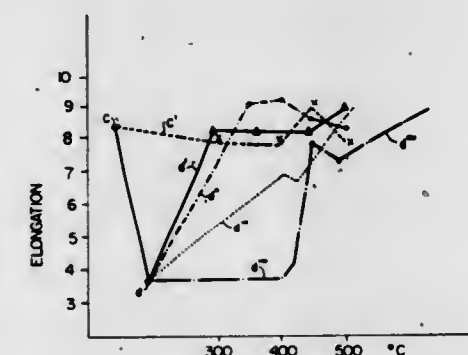
Tatuo Amakasu, Tokyo, and Takao Yamazaki, Fujisawa-shi, Japan, assignors to Koushuha-netsumen Kabushiki Kaisha, Tokyo, Japan

Filed Dec. 4, 1968, Ser. No. 781,174

Int. Cl. C21d 11/30

U.S. Cl. 219-58

4 Claims



A method for preserving the mechanical properties of steel wire or rod during spot welding of such steel wire or rod to form cages for use in prestressed concrete. The steel reinforcing rods are heated to a temperature of from 300-450° C. for from 5 seconds to 15 minutes after being spot welded.

3,573,419

CUTTING AND GOUGING TORCH

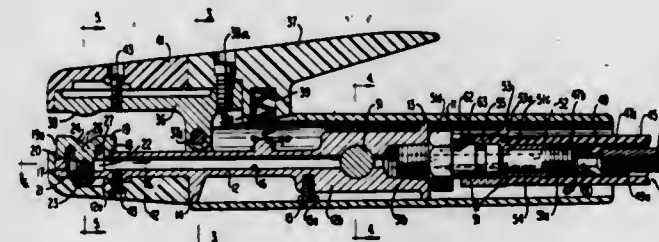
Harold R. Henderson, Lancaster, Ohio, assignor to Arcair Company, Allentown, Pa.

Filed Oct. 16, 1968, Ser. No. 768,044

Int. Cl. B23f 9/00; B23k 9/28

U.S. Cl. 219-70

16 Claims



This invention involves an improved design of the air-carbon arc type of cutting and gouging torch in which an elongated electrode is gripped by an electrode clamp with a portion of the electrode length exposed and projecting freely toward the workpiece so an arc may be struck and maintained between the electrode tip and the work and a nozzle connected to a source of high pressure gas, preferably air, disposed immediately adjacent where the electrode is gripped to direct a stream of gas along one side of the exposed length of the electrode toward its tip substantially parallel to the axis of the electrode to blow molten metal of the workpiece from beneath the arc.

3,573,420

PROCESS AND APPARATUS FOR NONCONSUMABLE ELECTRODE OVERLAY WELDING

Wallace C. Johnson, Wilmington, N.C., assignor to Arcos Corporation, Philadelphia, Pa.

Filed Dec. 23, 1968, Ser. No. 786,236

Int. Cl. B23k 9/04

U.S. Cl. 219-76

5 Claims

Electric arc overlay welding, often called arc cladding, on a metallic backing, which in many cases is of steel. A barrier strip rests on the backing and a nonconsumable electrode arcs to the barrier strip. In one form of the invention the nonconsumable electrode oscillates back and forth across the barrier strip as it moves forward and in some cases it goes beyond the barrier strip and arcs to a previous weld bead

beside the barrier strip. In one form of the invention the barrier strip is of green or unsintered compacted metal



particles. The barrier strip may contain flux and it may contain deoxidizer.

3,573,421

QUOTIENT CIRCUIT

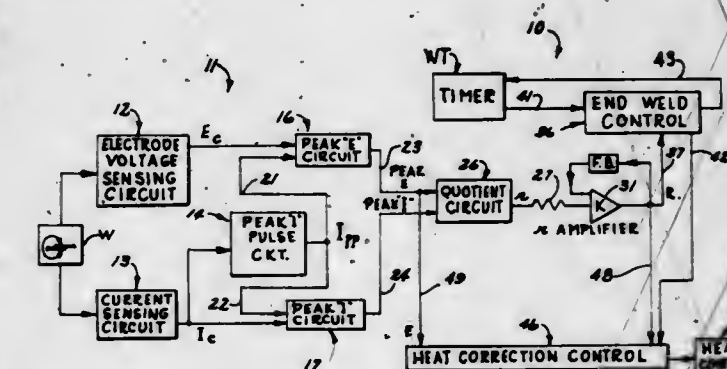
Peter W. Vanderheist, Livonia, Mich., assignor to Robotron Corporation, Detroit, Mich.

Filed July 3, 1967, Ser. No. 650,715

Int. Cl. B23k 9/10

U.S. Cl. 219-110

14 Claims



A resistance drop feedback welding control circuit is disclosed which includes apparatus for detecting the effective instantaneous resistance across the welding position of a resistance welding machine from the electrode voltage and welding current. A method of detecting the effective instantaneous resistance from the electrode voltage and welding current is also disclosed. Means are provided for producing pulses in concurrence with peaks of the welding current waveform. Further means controlled by these pulses sample the electrode voltage and welding current at the welding current peaks. A quotient circuit produces a high frequency pulse train in which the pulse amplitude is proportional to the peak electrode voltage amplitude and the pulse duration is inversely proportional to the peak amplitude of the welding current. The quotient circuit includes means for averaging the amplitude of the high frequency pulse train to provide a DC output proportional in magnitude to the contact resistance at the welding position.

3,573,422

METHOD OF ELECTRICALLY WELDING A CONTACT TO A RESISTANCE WIRE

Jack E. Langenbach, Corona Del Mar; James E. McAdoo, Santa Ana, and Paul L. Pataky, Anaheim, Calif., assignors to Beckman Instruments, Inc.

Original application Oct. 10, 1961, Ser. No. 144,251, now abandoned. Divided and this application June 7, 1965, Ser. No. 473,266

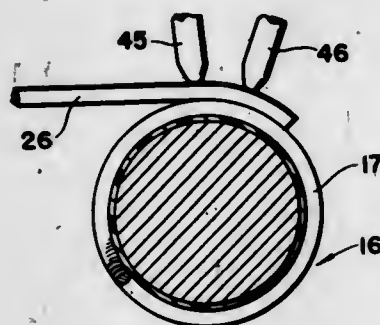
Int. Cl. B23k 11/20; H01c 17/00

U.S. Cl. 219-118

3 Claims

CLAIM 3. method of manufacturing electrical resistance elements comprising the steps of: winding a plurality of turns of bare, resistance-type wire onto an insulated core, said wire having a predetermined melting point; fabricating a termination tab from a material having a melting point substantially higher than the melting point of said wire, said tab being of sufficient width to span a plurality of turns of said wire; placing

said tab transversely across said core with a portion thereof in intimate contact with a plurality of turns of said wire; and supplying electrical energy to said tab by



electrodes at opposite sides of said portion to heat said tab and fuse said wire onto said tab at said portion between said electrodes.

3,573,423

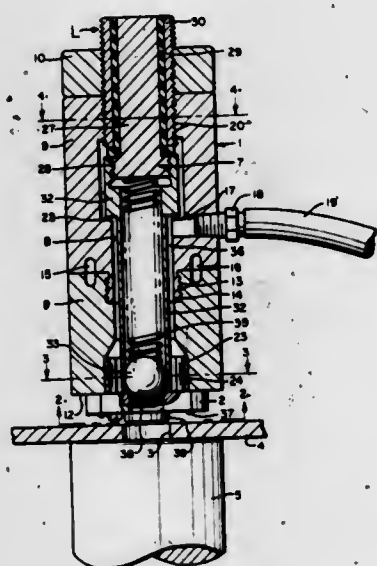
VACUUM ELECTRODE FOR WELD NUTS

Donald J. Medlin, Berea, Ohio, assignor to Fastener Industries, Inc., Cleveland, Ohio

Filed Sept. 15, 1969, Ser. No. 857,971
Int. Cl. B23k 9/24, 9/28

U.S. Cl. 219-119

15 Claims



An electrode for attaching weld nuts and the like to a workpiece, such as a steel sheet, in which an electrode body has a bore extending inwardly from an end face and pilot-positioning means is adjustably mounted in the bore to adapt the electrode for weld nuts of varying sizes. The electrode bore can be evacuated so that, in combination with the pilot-positioning means, a weld nut is retained by the vacuum against the end face of the electrode in suitable welding position.

3,573,424

METHOD FOR REMOVAL OF THE POROUS PORTION OF A BUTT WELD

Phillip F. Macherey, Bethel Park, Pa. assignor to the United States of America as represented by the United States Atomic Energy Commission

Filed July 23, 1969, Ser. No. 844,115
Int. Cl. B23k 15/00

U.S. Cl. 219-121

1 Claim

A method for butt welding with electron beams wherein an elongated or hollow cylindrical backup member is placed below the edges to be butt welded to receive the porous

portion of the weld bead which backup member and porous portion which may be subsequently cut away without



undercutting the work and without leaving remnants of the backup member on the work.

3,573,425

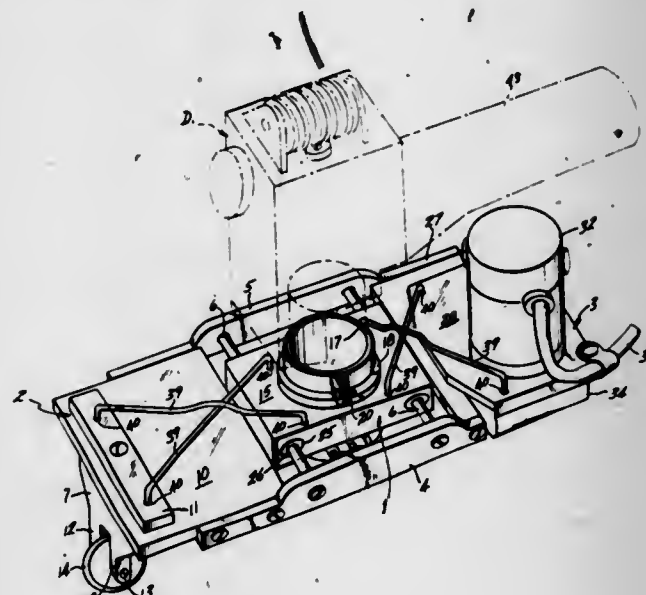
WELDING APPARATUS

Lloyd E. Damon, Wallingford, Conn., assignor to Olin Corporation

Filed July 30, 1969, Ser. No. 846,047
Int. Cl. B23k 9/12

U.S. Cl. 219-125

13 Claims



A semiautomatic welding apparatus which includes a guide wheel assembly, a welding gun carriage assembly and a drive wheel assembly joined together within one unit. The welding gun carriage assembly can be moved from side to side when a turning motion is applied to the welding gun handle. A gear and rack arrangement is used to move the welding gun carriage from side to side as the gun handle is turned. The guide wheel and drive wheel assemblies are pivoted on their axes which are essentially perpendicular to the seam being welded. Turning motion is supplied to these assemblies by tie rods which are attached to these assemblies and the welding gun carriage. By crossing these tie rods as an X, each assembly rotates on its axis in opposite directions, which allows the guide wheel and drive wheel to essentially follow the same path. The lateral movement of the welding gun carriage is proportional to turning moment of the guide and drive wheels with the result that the welding arc path follows the same path as the guide and drive wheels.

3,573,426

ARC WELDING

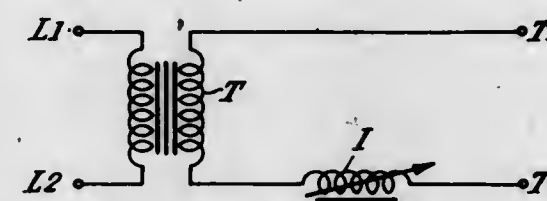
Paul Desmond Blake, Bishops Cleeve; Roy Douglas Johnston, Braughing Ware; Brian Phelps, Roydon near Harlow; Edwin Albert Chapman, Cuffley, Potters Bar, and Ronald Leonard Bartlett, Cheshunt, England, assignors to Murex Welding Processes Limited, Waltham Cross Hertfordshire, England

Filed Aug. 18, 1967, Ser. No. 661,637

Claims priority, application Great Britain, Oct. 31, 1966, Nov. 1, 1966, Nov. 8, 1966, Mar. 15, 1967, Mar. 28, 1967, Apr. 5, 1967, Apr. 10, 1967, Apr. 10, 1967, 48640/66; 48972/66; 49927/66; 12186/67; 13776/67; 15579/67; 15578/67; 16380/67

U.S. Cl. 219-146

6 Claims



Process for the arc welding of mild steel workpieces without external shielding of the arc by the use of cored tubular electrodes which deposit weld metal of improved physical properties and containing 0.5-1.3 percent aluminum 0.3-2 percent manganese, 0.1-1 percent silicon, not more than 0.12 percent carbon, and not more than 0.2 percent titanium, the balance substantially iron.

3,573,427

ELECTRICALLY CONDUCTIVE ASPHALTIC CONCRETE

Louis David Minsk, Hanover, N.H., assignor to the United States of America as represented by the Secretary of the Army

Filed July 30, 1969, Ser. No. 846,231
Int. Cl. H05b 3/60

U.S. Cl. 219-213

5 Claims

The passage of an electric current through an electrically conductive asphaltic concrete surface generates sufficient heat within the surface to prevent the accumulation of snow and ice thereon. The asphaltic concrete is made electrically conductive by incorporating graphite particles within the concrete mix.

3,573,428

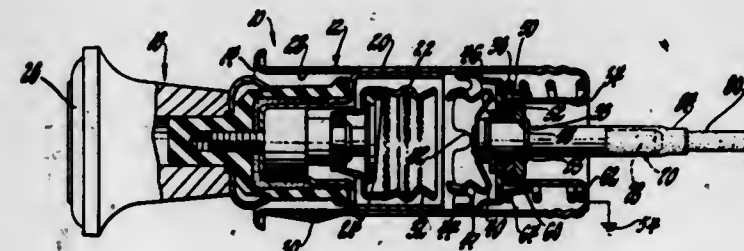
CIGARETTE LIGHTER WITH A FUSIBLE CIRCUIT BREAKER

Donald G. Dening, Rochester, and Jack P. Castellana, Churchville, N.Y., assignors to General Motors Corporation, Detroit, Mich.

Filed Oct. 7, 1969, Ser. No. 864,314
Int. Cl. F23g 7/24

U.S. Cl. 219-265

3 Claims



A cigarette lighter of the type having a manually removable igniting plug slidably received in the open end of a mounting case which includes a current inlet supply post for completing an igniting circuit between a heating element carried by the igniting plug and a connector from a current source. The current inlet supply post includes a fusible pin

formed of a low-melting point alloy which melts by conductive heating so as to permanently interrupt the igniting circuit by releasing an end portion of the pin and the connector from said post when the lighter reaches a predetermined elevated temperature.

3,573,429

HEATING DEVICE

Frederick W. Brodbeck; Dick Q. Durant, and Richard D. Taylor, St. Louis County, Mo., assignors to McDonnell Douglas Corporation, St. Louis, Mo.

Filed Jan. 8, 1969, Ser. No. 789,683

Continuation-in-part of Ser. No. 301,488, Aug. 12, 1963, Pat. No. 3,296,415, which was a Continuation-in-part of Ser. No. 749,554, July 18, 1958, Pat. No. 3,100,711.

U.S. Cl. 219-343

14 Claims



A graphite resistance-type heating element having legs mounted on liquid cooled connector blocks is disposed in front of a graphite felt pad which, in turn, is mounted on a liquid cooled plate. The graphite felt absorbs heat and radiates it back toward its source and beyond. Consequently, the connector blocks, the plate and other components located behind the graphite felt remain relatively cool and need not be constructed from refractory materials.

3,573,430

SURFACE HEATING DEVICE

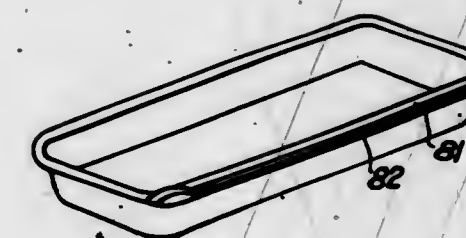
Paul Eisler, London, England

Filed Dec. 30, 1966, Ser. No. 607,601

Continuation-in-part of Ser. No. 301,488, Aug. 12, 1963, Pat. No. 3,296,415, which was a continuation-in-part of Ser. No. 749,554, July 18, 1958, Pat. No. 3,100,711

U.S. Cl. 219-385

4 Claims



A dispensable container for a substance to be heated therein incorporates a low voltage surface pattern heating film with externally accessible terminals, the relative disposition of the film container and substance being such that the heat generated by the film does not exceed that dissipated into the substance by more than 4 watts per square inch, means also being provided to ensure that more heat reaches the substance than the external surface of the complete package.

There may be heat insulation between the container and its surface. The film may be of patterned metallic foil. There may be provision to supply heat from outside by radiation or conduction. There may also be provision for a small body of liquid between the film and substance, the liquid having access to a substantial area of the substance so that the temperature is limited to the boiling point of the liquid.

3,573,431

AUTOMATIC MEAT COOKING SYSTEM

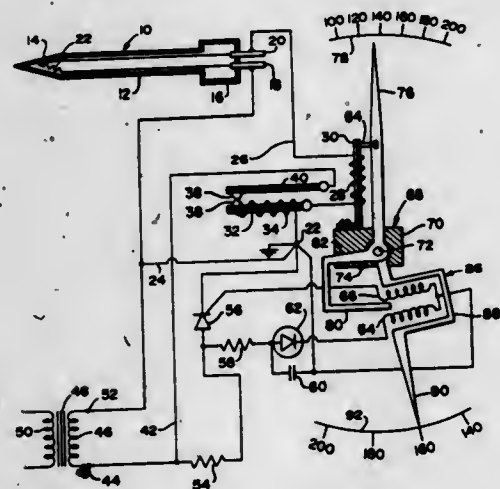
Hugh J. Tyler, Santa Ana, and James R. Willson, Garden Grove, Calif., assignors to Robertshaw Controls Company, Richmond, Va.

Filed Oct. 2, 1969, Ser. No. 863,275

Int. Cl. H05b 1/02

U.S. Cl. 219-516

15 Claims



An automatic meat cooking system including a probe for sensing the internal temperature of a piece of meat, an indicator assembly including an internal temperature responsive member movable in response to temperature sensed by the probe to continuously indicate the actual internal temperature of the meat and a vane adapted to permit the triggering of a detecting circuit when the vane is in a predetermined position with respect to a temperature adjusting member such that the detecting circuit energizes a load to cool an oven from cooking temperature to holding temperature while anticipating the cooking of the meat during the cooling period.

3,573,432

SYSTEM FOR READING CODED INFORMATION FROM PUNCHED CARDS WITH AUTOMATIC ERROR DETECTION AND CORRECTION

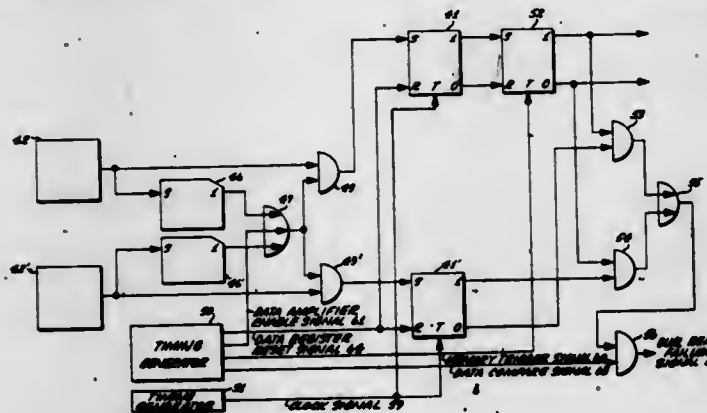
David Murray, Phoenix, Ariz., and Kenneth D. Hulse, Glendale, Calif., assignors to General Electric Company

Filed Apr. 10, 1967, Ser. No. 629,570

Int. Cl. G06k 5/00

U.S. Cl. 235-61.7

9 Claims



A logic control system energized by signals derived from punched cards which detects and corrects errors resulting from misread or damaged cards.

3,573,433

OPTICAL READ-ONLY MEMORY

Thomas J. Harris, Poughkeepsie, N.Y., assignor to International Business Machines Corporation, Armonk, N.Y.

Filed Jan. 15, 1968, Ser. No. 697,710

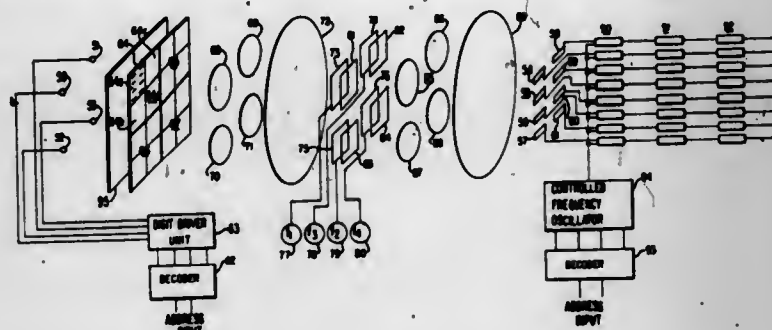
Int. Cl. G06k 9/04; G11b 7/08

U.S. Cl. 235-61.11

8 Claims

An optical read-only memory system for reading binary information from a film with transparent locations indicating

bits. A plurality of lens systems are provided to successively divide the binary information from the film into smaller and more easily handled units of information. The system is adapted to be used also as an associative memory unit.



Frequency modulation systems are provided for use of the system as a parallel operated associative memory. Frequency modulation is also used to reduce the number of light sources and photosensitive elements required.

3,573,434

CARD READER

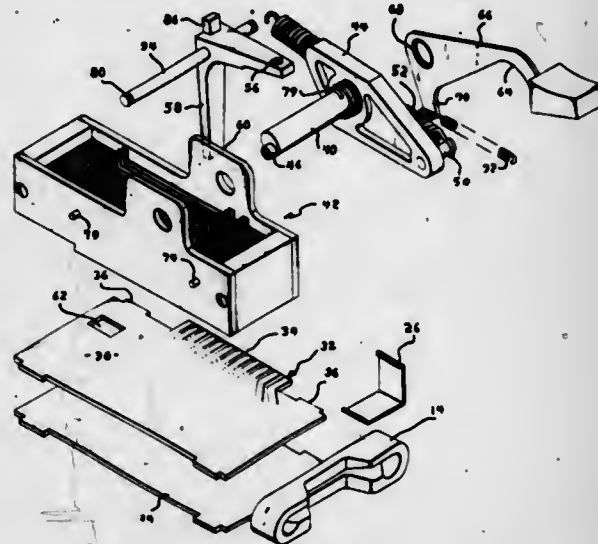
John Gleason Wallace, Shellsville, and Charles Michael Lovendusky, Enola, Pa., assignors to AMP Incorporated, Harrisburg, Pa.

Filed Aug. 28, 1968, Ser. No. 755,848

Int. Cl. G06k 7/01

U.S. Cl. 235-61.11

7 Claims



A reliable, low cost card reader for reading credit cards. A simplified mechanism for actuating the card reading head comprises a spring-toggle arrangement which is released when a credit card is inserted into the reader. A manual lever resets the toggle arrangement to raise the reading head and eject the card. The mechanism utilizes a number of inexpensive stamped parts, and the design is such that assembly of parts is very easy and precise.

3,573,435

READOUT FOR MOVING DIGITALLY PUNCHED CARDS

Peter Heinz, Im Oschle, and Gerhard Podschadly, Uberlingen (Bodensee), Germany, assignors to Bodenseewerk Perkin-Elmer & Co. G.m.b.H., Uberlingen/Bodensee, Germany

Filed May 14, 1969, Ser. No. 824,488

Claims priority, application Germany, May 18, 1968,

P 17 74 298.2

Int. Cl. G06k 7/015, 13/06

U.S. Cl. 235-61.11

6 Claims

A device for reading digitally stored data on, for example, a moving punched card (for example, by being carried along by a rotating turntable, which may be part of an automatic chemical analysis instrument). A reading or scanning device including a series of pins for finding each of the holes in the punched card, is mounted for both movement toward and

3,573,437

BI-DIRECTIONAL CARD READING SYSTEM

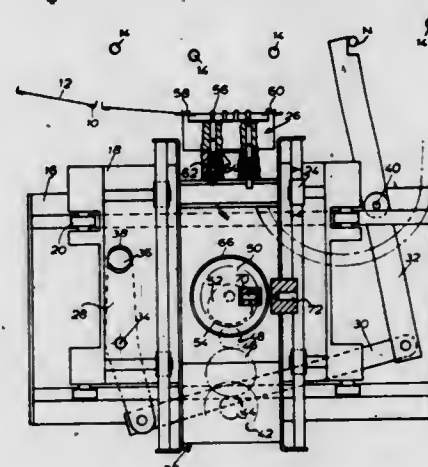
Thomas J. Scutito, Malibu, and William B. Newby, Los Angeles, Calif., assignors to Wyle Laboratories, El Segundo, Calif.

Filed June 4, 1968, Ser. No. 734,275

Int. Cl. G06k 7/14; G11b 5/48

U.S. Cl. 235-61.11

4 Claims



individual pins that "finds" a hole closes one of a group of electrical contacts, each of which is supplied an appropriate number of pulses (equal to the digital "value" of that particular hole location) by a pulse generator (which may comprise a "light gate" and a digital interrupting means, such as a series of holes in a revolving drum). Thus, the device scans a moving record medium, such as a card with punched holes, without any risk of substantial misalignment of the scanning device (i.e., the pins) relative to the moving card.

3,573,436

METHOD AND APPARATUS FOR READING TICKETS, AND TICKET FOR USE THEREWITH

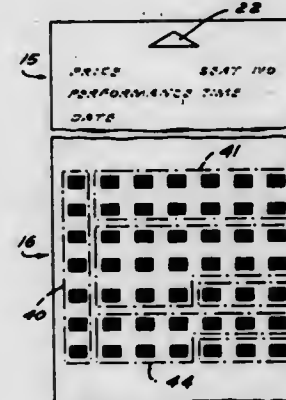
Robert M. Berler, Westport, Conn., and Norman Alpert, Scarsdale, N.Y., assignors to Pitney Bowes-Alperx Inc., Danbury, Conn.

Filed Oct. 8, 1968, Ser. No. 765,771

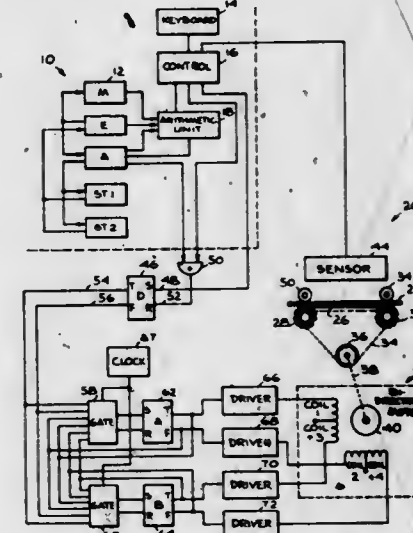
Int. Cl. G06k 19/06, 7/14

U.S. Cl. 235-61.12N

2 Claims



Ticket printed by a conventional computer printer includes, in addition to usual information, markings arranged according to a predetermined code on a portion of the ticket in rows and columns. The greatest possible number of markings per inch in each row and column are related to the number of characters per inch in each row and column, respectively, printed out by the computer printer. The ticket is read by advancing it at constant speed past a means, such as a bank of photoelectric cells equal in number to the number of columns of markings, capable of producing an electric signal in response to sensing the markings.



A system for use in conjunction with a digital calculator for reading program cards or other indicia bearing records. The system includes a transport mechanism capable of selectively moving a card in opposite directions. Data on the card defines a sequence of calculator instructions. Reading means sequentially reads the instructions as the card is moved in a forward direction to thus cause the calculator to execute the operations identified by the instructions. Means are provided responsive to conditional and unconditional branch instructions for reading the instructions out of sequence. For example, in response to a CONDITIONAL REWIND instruction and the content of one of the calculator registers, the card is moved in a reverse direction until a FORWARD instruction is sensed.

3,573,438

THERMALLY CONTROLLED OPTOELECTRONIC DISPLAY DEVICE

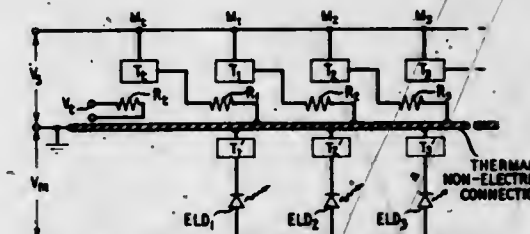
John H. Rowen, Florham Park, N.J., assignor to Bell Telephone Laboratories, Incorporated, Murray Hill, N.J.

Filed July 19, 1967, Ser. No. 654,429

Int. Cl. H03k 23/02

U.S. Cl. 235-92

2 Claims



A shift register includes a plurality of modules connected in parallel, each of the modules comprising a variable resistivity element disposed adjacent to a heating resistor. In order that a pulse propagate from one module to the next, the heating resistor of each module is made responsive to the state of the variable resistivity element of the next preceding module. The shift register has application as a scanner for optoelectronic display panels.

3,573,439

HIGH SPEED QUINARY COUNTER

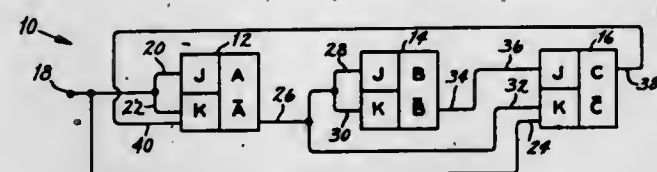
Ronald G. Myers, Parsippany, N.J.; Harvey Bidner, Plainview, N.Y., and Reinhold J. Eufinger, Jr., Morris Plains, N.J., assignors to Monsanto Company, St. Louis, Mo.

Filed May 1, 1968, Ser. No. 725,666

Int. Cl. H03k 23/24

U.S. Cl. 235-92

2 Claims



A quinary counting circuit consisting of three J-K flip-flops which are interconnected in a manner such that the flip-flop to which all pulses to be counted are applied is inhibited by a pulse occurring prior to the fourth pulse to be counted. In this manner the effect of the propagation delays of the individual J-K flip-flops on the speed of the quinary circuit is minimized.

3,573,440

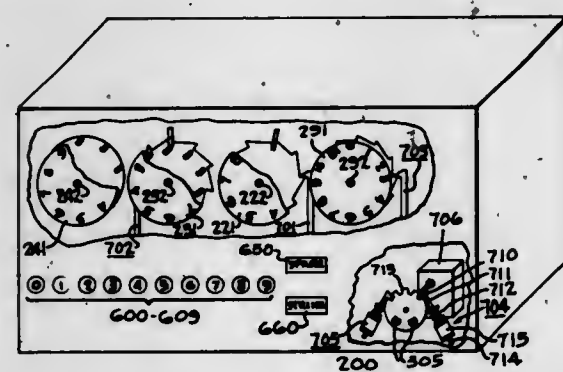
ELECTROMAGNETIC SCORER FOR BOWLING

Harry A. McClister, Deceased, Late of Morrisville, Pa., Ruth W. McClister, Executrix, 91 N. Delmar Ave., Morrisville, Pa., and The Fidelity Bank, Co-executor, Philadelphia, Pa. Continuation-in-part of application Ser. No. 577,293, June 13, 1966, now Patent No. 3,406,902, dated Oct. 22, 1968. This application Oct. 18, 1968, Ser. No. 768,939

Int. Cl. G06m 3/06

U.S. Cl. 235-92

4 Claims



A scorer for bowling comprises scorekeeping wheels for units, tens, and hundreds, a frame-counting wheel, and a memory device. The player is informed of the infrequent situation in which he must score the first fall of a frame. The player actuates buttons corresponding to strikes, spares, or a knock down of less than 10 pins, and an electrical method utilizing the McClister instant scoring mathematics actuates the wheels to show the resulting score. The button-pushing accomplishes the same general sequences electromechanically as described in the mechanical type of scorer of the parent case.

3,573,441

AUTOMATIC TRAIN LENGTH COMPUTER

Arthur J. Glazar, Kings Park, N.Y., assignor to Servo Corporation of America, Hicksville, N.Y.

Filed Aug. 29, 1968, Ser. No. 756,113

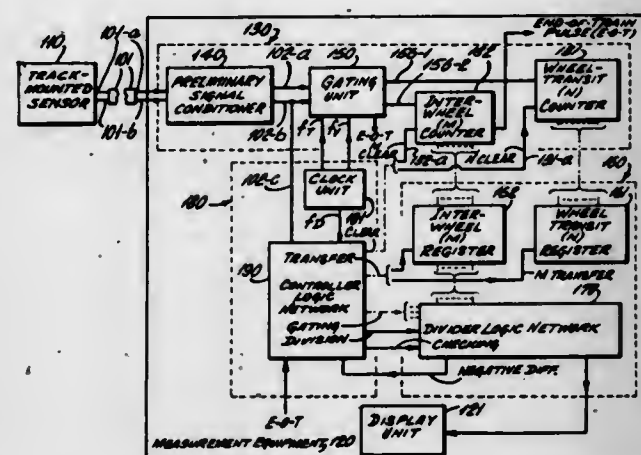
Int. Cl. G06f 15/48; G06g 7/78

U.S. Cl. 235-150.24

4 Claims

An apparatus for measuring the length of a moving railroad train is provided. The apparatus includes two sensors mounted on a rail of the track in relatively close proximity to one another and two counting circuits, each of which is operatively connected to the sensors and counts the pulses from an associated fixed frequency pulse generator. The first counting circuit is enabled when a wheel passes the first sensor and disabled when that wheel passes the second sensor. The second counting circuit counts the pulses during

the time interval between successive wheels passing one of the sensors. An arithmetic unit is also provided which computes the quotient of the counts of the first and second counting circuits. The quotient is directly proportional to the



distance between the successive wheels. The arithmetic unit also sums the quotient for each set of successive wheels and this sum is directly proportional to the total length of the train.

3,573,442

SAMPLED DATA HYBRID ANALOGUE-DIGITAL COMPUTER SYSTEM

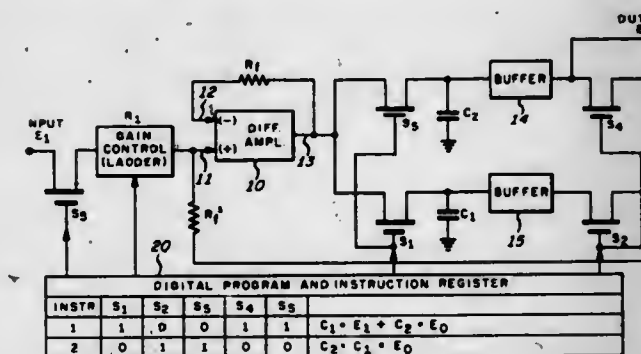
Richard E. Andeen, Phoenix, Ariz., assignor to Sperry Rand Corporation

Filed June 16, 1967, Ser. No. 646,549

Int. Cl. G06j 1/11

U.S. Cl. 235-150.5

16 Claims



A hybrid analog-digital computer apparatus, particularly applicable in controlling complex servomechanisms such as aircraft flight control actuation and display systems, comprising a time shared or multiplexed operational amplifier adapted to receive analog signals from control system inputs and command sources through a large plurality of solid state switching devices at controllable gain levels and to supply outputs through a plurality of similar output switching devices to a plurality of analog storage devices, such as simple capacitors, the charges on the capacitors being fed back to the amplifier input in predetermined controlled manners for performing various control functions; the computer outputs being the resultant charges on one or more of said capacitors and being supplied to the actuation and/or display devices. Through predetermined control of the input and output switches, one or more input signals are selected and various computational operations thereon are performed as required for proper system control. The signals to be selected and the computations to be performed are under the control of a programmed digital memory, the sequential word and word bit outputs of which determine the sequence and orders respectively of switch operations and the signal gains required. The digital format of the program output and the high-speed operation of the solid-state switches provide extremely rapid sequencing of desired computations while the data always remains in analog form thereby retaining the precise resolution of analog computers while providing the high-speed capability of digital computers. Since all the computations are determined by the programmed memory, the computer is adaptable to control systems of widely

different characteristics and complexity merely by the addition or deletion of switches and storage capacitors and by inserting the proper program into the memory. Hence, in terms of aircraft automatic flight control, a truly "universal" flight control system.

3,573,443

DIGITAL-ANALOG RECIPROCAL FUNCTION COMPUTER-GENERATOR

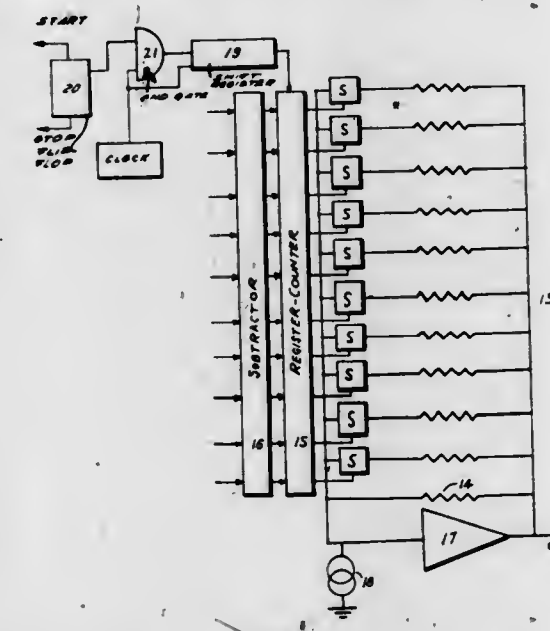
Harry Fein, 832 Quarter Mile Road, Orange, Conn.

Filed July 9, 1968, Ser. No. 743,491

Int. Cl. G06g 7/16; G06j 1/00

U.S. Cl. 235-150.53

7 Claims



A hybrid circuit which may function as a digital to analog converter is disclosed. The invention comprises a combination of digital and analog circuit components which provide an analog output which is the reciprocal of a binary input signal. The invention may also be employed as a hyperbolic function generator by delivering digital input signals in consecutive order to the circuit.

3,573,444

GAGING CAMBER OF LENGTHWISE MOVING STRIP MATERIAL

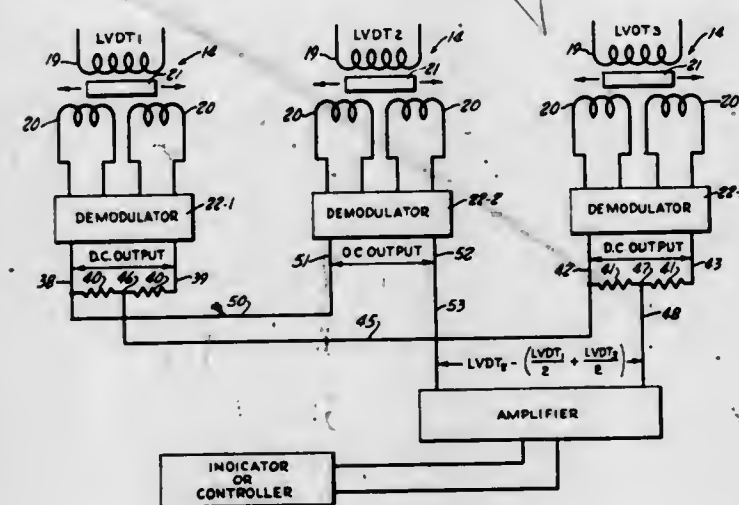
James S. Kawabata, Niles, and James E. Tudor, Jr., Des Plaines, Ill., assignors to Contour Saws, Inc., Des Plaines, Ill.

Filed June 4, 1969, Ser. No. 830,418

Int. Cl. G05d 5/00

U.S. Cl. 235-151.3

9 Claims



There is a feeler-equipped transducer for each of three equidistant fixed points on a line parallel and lengthwise adjacent to an elongated zone through which strip to be gauged moves lengthwise. Each transducer produces a continuous output corresponding in sign and magnitude to the distance between its point and an edge of the strip,

measured in the direction of departures from straightness to be gauged. One-half the sum of the outputs corresponding to the outer points is subtracted from the output corresponding to the middle point to obtain a signal having a sign and magnitude representing camber.

3,573,445

DEVICE FOR PROGRAMMED CHECK OF DIGITAL COMPUTERS

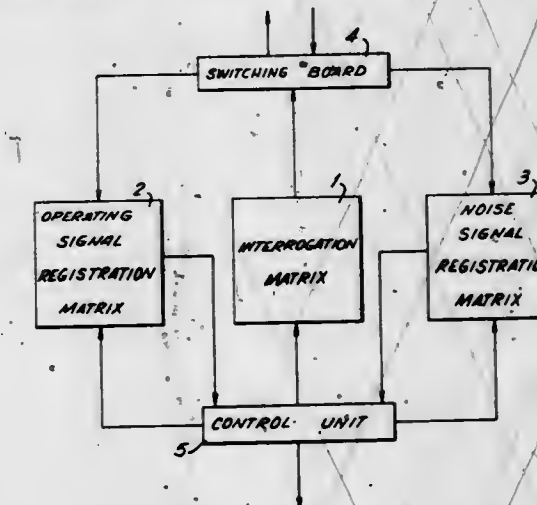
Ludmila Alexandrovna Korytnaja, B. Kitaevskaja Str. 111/2, Apt 72, and Boris Nickolaevich Malinovsky, B. Kitaevskaja Str. 111/2, Apt 16, Kiev, U.S.S.R.

Continuation-in-part of application Ser. No. 771,844, Oct. 30, 1968, now abandoned, Continuation-in-part of application Ser. No. 449,409, Apr. 20, 1965, now abandoned. This application July 7, 1969, Ser. No. 839,209

Int. Cl. G06f 11/04, 11/06

U.S. Cl. 235-153

4 Claims



A programmed device for detecting faults in digital computers comprises an interrogation matrix ensuring activation of computer elements checked, an operating signal registration matrix that registers the operating signals arriving from the computer elements checked after their being activated by the interrogation matrix, a noise signal registration matrix, a unit for controlling said matrices, a switching board maintaining the connection between inputs of the computer elements checked and outputs of said interrogation matrix, and between outputs of the elements checked with inputs of said operating signal registration matrix and noise signal registration matrix.

3,573,446

REAL-TIME DIGITAL SPECTRUM ANALYZER UTILIZING THE FAST FOURIER TRANSFORM

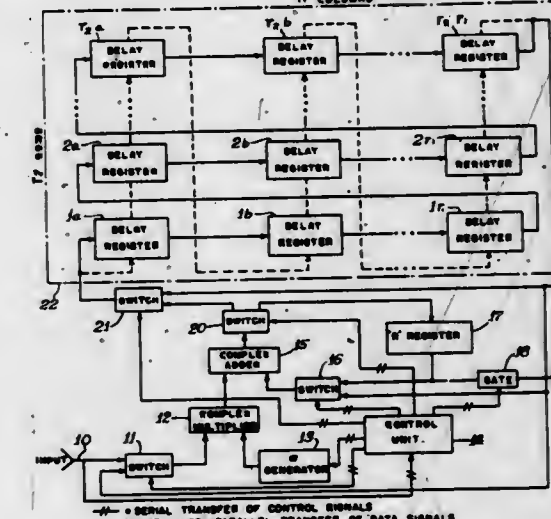
Glenn D. Bergland, Morristown, N.J., assignor to Iowa State University Research Foundation, Inc., Ames, Iowa

Filed June 6, 1967, Ser. No. 643,902

Int. Cl. G06f 7/38

U.S. Cl. 235-156

5 Claims



A digital signal processing system for computing the finite discrete Fourier transform coefficients from a number (N) of

digitized samples of an input signal in real time. The signal being analyzed is sampled a predetermined number of times over a given interval, and this number of samples is expressed as the product of two integers, $N=r_1 r_2$. An array of delay registers is arranged in the form of a matrix having r_1 columns and r_2 rows. The delay registers are controlled so that the contents may be transferred either in a column shift mode or in a row shift mode. While shifting the contents of the array in the row shift mode, the system computes an intermediate set of spectrum estimates which are stored in the array. From this intermediate set, the final coefficients are generated while shifting the contents of the array in its column shift mode.

3,573,447

LOGICAL MULTIPLY SCHEME FOR BINARY COMPUTER

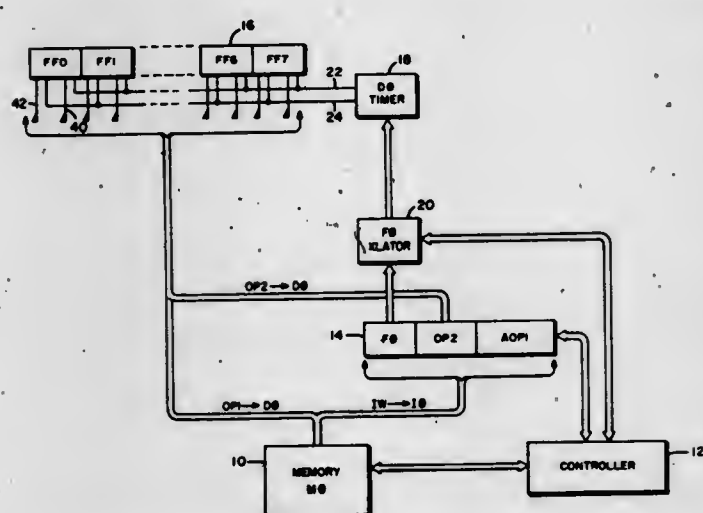
Gerald J. Erickson, St. Paul, Minn., assignor to Sperry Rand Corporation, New York, N.Y.

Filed Mar. 11, 1969, Ser. No. 806,197

Int. Cl. G06f 7/39

U.S. Cl. 235-164

4 Claims



A scheme for performing a logical multiply operation in a computer using binary arithmetic and double-gated logic, i.e., both the input set and clear gates of the data register stages are simultaneously enabled, for data transfers into the data register. The scheme involves double gating a first operand into the data register and then transferring only the 0 bits of a second operand into the data register by enabling only the input clear gates of the data register stages. This operation achieves a logical multiply of the first and second operands.

3,573,448

HYBRID MULTIPLIER

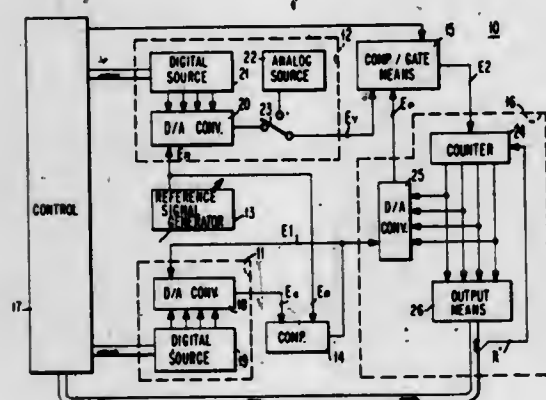
Ralph D. Valentine, Owego, N.Y., assignor to International Business Machines Corporation, Armonk, N.Y.

Filed July 25, 1969, Ser. No. 844,765

Int. Cl. H03k 13/02; G06g 7/16; G01j 1/00

U.S. Cl. 235-150.52

11 Claims



A multiplier circuit using analogue and digital techniques in which a multistage register is employed to store one or two

quantities to be multiplied. Digital information corresponding to each of the low order numbers is shifted in the register in the high order direction to its corresponding highest order binary related number capable of being stored in the register to allow the processing of both the high and low order numbers in the same linear portion of the operating characteristic of succeeding analogue components provided by the circuit. The multiplication operation is performed with these high order numbers of the particular quantity. At the output, a second shift register stores digital information corresponding to the resultant product of the high order number quantity and the other quantity. If a shift operation was performed in the other register, the digital information stored in the second register is shifted therein in the downward direction an equal number of times. As an alternative embodiment a third register is also provided for storing digital information corresponding to the other quantity. This last-mentioned digital information is shifted in the third register in an upward direction for the low order numbers of the particular quantity in a manner similar to the shifting operation provided for the first register. The multiplication operation in the alternate embodiment is performed with the high order numbers of both quantities, and the resultant digital information stored in the second shift register is shifted in the downward direction a number of times equal to the shifts, if any, provided in the first and third registers.

3,573,449

OPTICAL PULSE EXPANSION SYSTEM

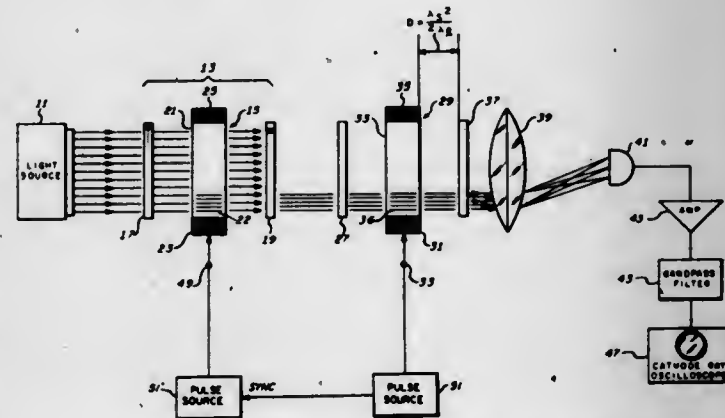
William T. Maloney, Sudbury, Mass., assignor to Sperry Rand Corporation

Filed Oct. 21, 1968, Ser. No. 769,280

Int. Cl. G06g 7/19; H03k 3/42

U.S. Cl. 235-181

3 Claims



An optical pulse expansion device includes first and second ultrasonic light modulators and a coded mask positioned so that a collimated light beam can be passed serially through these elements and focused on a photodetector. The first ultrasonic light modulator is sandwiched between crossed polarizers that block the passage of light under quiescent conditions. First acoustic pulses are propagated through the first ultrasonic light modulator in synchronism with second acoustical pulses that are propagated through the second ultrasonic light modulator. These pulses limit the light to the acoustically stressed regions of the second ultrasonic light modulator when scanning the coded mask.

3,573,450

MODEL FUNCTION GENERATOR

Louis H. Fricke, Jr., St. Louis, and Robert A. Walsh, Richmond Heights, Mo., assignors to Monsanto Company, St. Louis, Mo.

Original application Oct. 13, 1965, Ser. No. 495,565, now Patent No. 3,505,512. Divided and this application Mar. 25, 1969, Ser. No. 830,558

Int. Cl. G06g 7/19

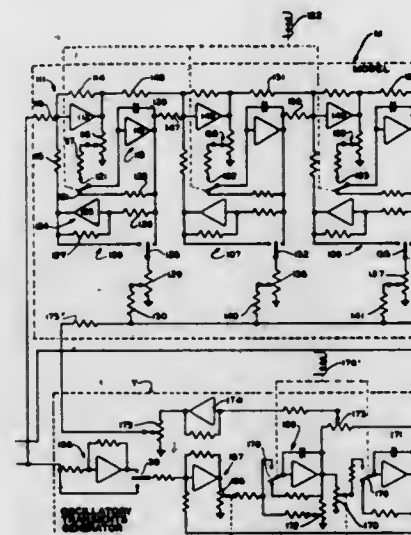
U.S. Cl. 235-185

9 Claims

A model function generator for use with rapid process simulators to determine static and dynamic characteristics in

a process. The model function generator produces an output transfer function in response to an input function and which output transfer function is adjusted to match the output signal from the process. The model function generator includes a plurality of individual modules having transfer

perturbating pulse to the model with respect to the process, so that the output of the process and the model will begin in coincident times. In addition, the simulator is provided with a generator to produce oscillatory transients on a model of the signal to match transient on the process signal.



functions which are generally orthonormal and each of the modules includes a summer, an integrator, an inverter, a first potentiometer for adjusting the time constant represented by the module and a second potentiometer for adjusting the amplitude coefficient represented by the module.

3,573,451

FUNCTION GENERATOR FOR PRODUCING SQUARE AND RAMP WAVE PULSES

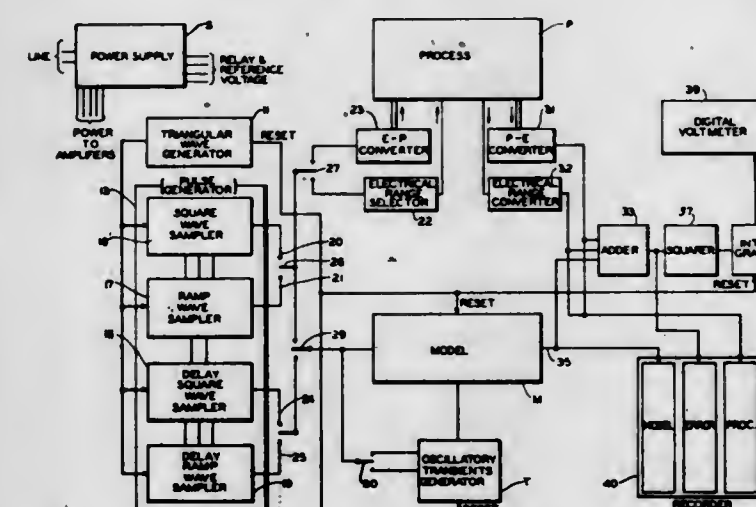
Louis H. Fricke, Jr., St. Louis, and Robert A. Walsh, Richmond Heights, Mo., assignors to Monsanto Company, St. Louis, Mo.

Original application Oct. 13, 1965, Ser. No. 495,565, now Patent No. 3,505,512. Divided and this application Aug. 25, 1969, Ser. No. 870,812

Int. Cl. G06g 7/26

U.S. Cl. 235-197

4 Claims



A rapid process simulator for determining both static and the dynamic characteristics which are unknown in a relatively stable process. The simulator includes a pulse generator for producing a perturbating pulse which is applied to the process. The perturbating pulse produces an output signal which can be expressed in the form of a polynomial. The process is compared in the simulator with a model of orthogonal functions which are capable of being normalized to an orthonormal condition. The model is formulated with the idea of choosing a pulse input in such a way as to facilitate the construction of the system. An output signal is also produced in the model which is in turn compared with the output signal from the process in order to achieve an error signal. This signal is squared in the simulator and integrated to determine the characteristics of the system. The simulator includes a transport delay device for delaying the

3,573,452

LUMINAIRE

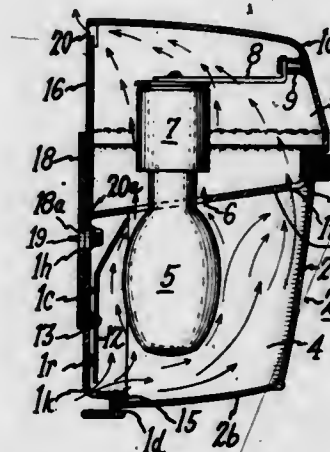
Lewis W. Kenyon, Flat Rock, and Robert G. Kilpatrick, Hendersonville, N.C., assignors to General Electric Company

Filed Apr. 14, 1969, Ser. No. 815,869

Int. Cl. F21s 1/02

U.S. Cl. 240-73

15 Claims



A wall mounted luminaire comprising a one-piece housing having a transverse wall sloping downwardly toward the rear forming an upper ballast compartment and a lower lamp compartment. The housing has rear vent openings at the top and bottom to permit convection flow of heated air through the housing while providing for drainage of rainwater which may enter the unit.

3,573,453

PLURAL BEAM MASS SPECTROMETER FOR CONDUCTING HIGH AND LOW RESOLUTION STUDIES

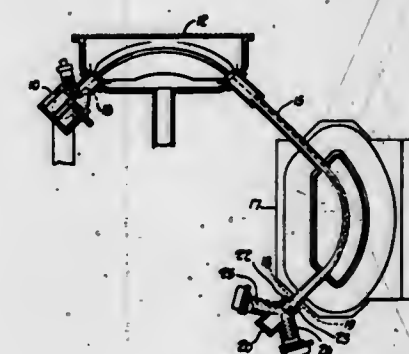
Patrick Powers, Binstead, England, assignor to Associated Electrical Industries Limited, London, England

Filed May 12, 1967, Ser. No. 638,133

Int. Cl. H01j 39/34

U.S. Cl. 250-41.9

25 Claims



A mass spectrometer is provided with one or two ion sources and two collectors. Slit structure is associated with each ion beam and the mass spectral range of one beam can be compared with the other beam.

3,573,454

METHOD AND APPARATUS FOR ION BOMBARDMENT USING NEGATIVE IONS

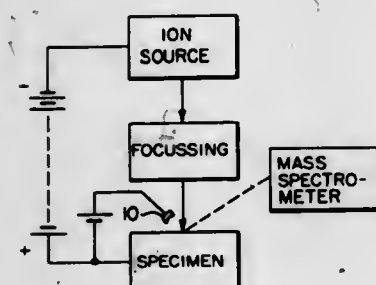
Cristian A. Andersen, Solvang, and Henry J. Roden, Santa Barbara, Calif., assignors to Applied Research Laboratories, Inc., Sunland, Calif.

Filed Apr. 22, 1968, Ser. No. 723,026

Int. Cl. H01j 39/34; H01j 7/00

U.S. Cl. 250-41.9

3 Claims



Improved stability and control in ion bombardment is achieved in the case of many materials under bombardment by the use of negative ions. The method is especially advantageous for the analysis of insulating materials by secondary ion emission and also enables improved results in ion implantation processes.

3,573,455

EXAMINATION OF ARTICLES BY X-RAYS

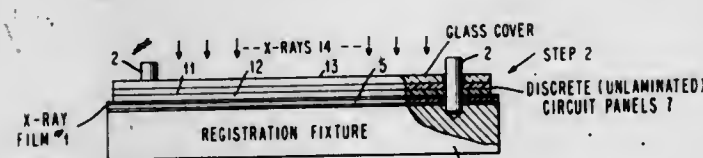
John Snierveld, Wappingers Falls, N.Y., assignor to International Business Machines Corporation, Armonk, N.Y.

Filed Sept. 13, 1968, Ser. No. 759,575

Int. Cl. G01n 23/04

U.S. Cl. 250-65

13 Claims



Superimposed X-ray photographs of a partly and/or completely formed laminar printed circuit article, taken before and after a given stage of an article lamination process, are viewed and/or photographed through magnifying optics. Otherwise undetectable dimensional shifts in the article are revealed in this manner at an early stage of manufacture. The problems of assuring precise spatial orientation of the article during the x-ray photography, and of providing an accurate frame of reference for registration of the superimposed photographs, are solved. A special fixture and template are provided for this purpose. The template and article are separately photographed on each film by a double exposure technique. Template and article are separately fixed in orientation relative to the x-ray film by means of the special fixture. The template exposure image constitutes the desired frame of reference for registration of superimposed photograph transparencies. Locating pins on the fixture mate with holes on the template for one x-ray exposure and holes on the article for a second x-ray exposure. The locating pins and the precisely tooled flat surface of the fixture against which the film is held form an absolute frame of reference in three dimensional space.

3,573,456

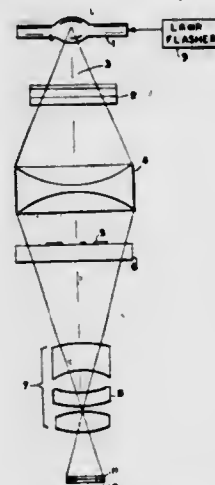
HIGH RESOLUTION PROJECTION MEANS FOR PRINTING MICRO CIRCUITS ON PHOTORESIST MATERIAL

Roland C. M. Beeh, Brentwood, L. I., N.Y., assignor to OPTOMECHANISMS, Inc., Plainview, N.Y.

Filed July 26, 1967, Ser. No. 660,862

Int. Cl. G03b 27/32

1 Claim



A high resolution projection means for printing demagnified micro circuits or images on photoresist material comprising a monochromatic ultra violet light, a band-pass filter, a quartz condenser lens system, and uncorrected quartz objective lens system and a fluorite aspheric correction plate for the uncorrected lens system.

3,573,457

LUMINESCENT PATTERN STRUCTURE

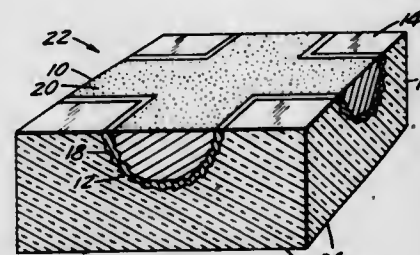
Gary B. Grant, St. Paul, Minn., and Marvin J. Schmitz, North Hudson, Wis., assignors to Minnesota Mining and Manufacturing Company, St. Paul, Minn.

Filed Mar. 26, 1969, Ser. No. 810,491

Int. Cl. H01j 1/72

U.S. Cl. 250-71

8 Claims



A luminescent pattern structure wherein luminescent material defining a reference pattern is supported in grooves etched in a transparent member, and an opaque material located in the grooves between the luminescent material and the transparent member prevents appreciable halation due to light emitted by the luminescent material. This luminescent pattern structure providing a reference pattern is coextensive with a target surface capable of displaying an image to enable viewing of the reference pattern superimposed on the image.

3,573,458

POSITRON CAMERA WITH MULTIPLANE FOCUSING

Hal O. Anger, Berkeley, Calif.

Filed Mar. 27, 1969, Ser. No. 811,027

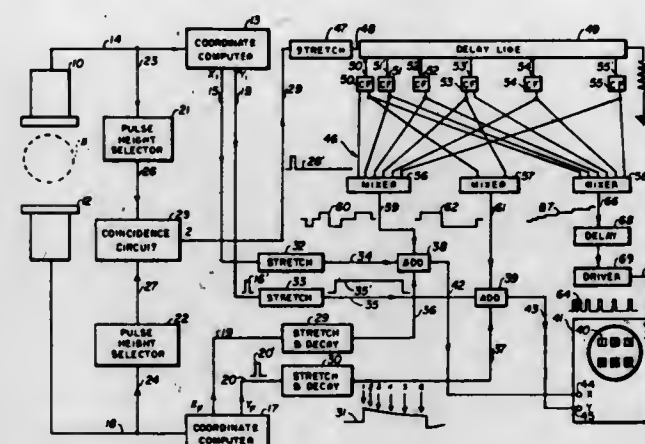
Int. Cl. G01t 1/20

U.S. Cl. 250-71.5

14 Claims

A positron radiation detecting camera for obtaining, in one step, an image of the distribution of radioactivity at several different depths in a living subject. Several views are simultaneously presented, each view being focused at a differing plane in the subject between the image detector and focal detectors of the camera. Thus, it is not necessary to know in advance from which plane the radioactivity will

emanate, since at least one image will be in focus. Also, radioactivity may emanate from several planes simultaneously. The radiation is detected as in the prior



known single-plane positron camera but positional information is electronically combined in differing ratios to obtain multiplane focusing.

3,573,459

COUPLED FIBER OPTIC FACEPLATES

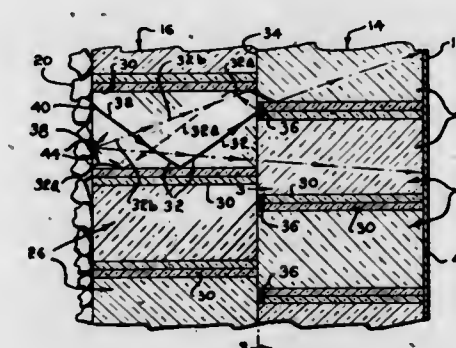
Walter P. Siegmund, Woodstock, Conn., assignor to American Optical Corporation, Southbridge, Mass.

Filed Mar. 28, 1969, Ser. No. 811,397

Int. Cl. G02b 5/16

U.S. Cl. 250-80

4 Claims



Fiber optical faceplates adapted to be coupled together in close physical contact to transfer light from one faceplate into the other with increased efficiency.

3,573,460

ION CHAMBER DETECTOR FOR SUBMICRON PARTICLES

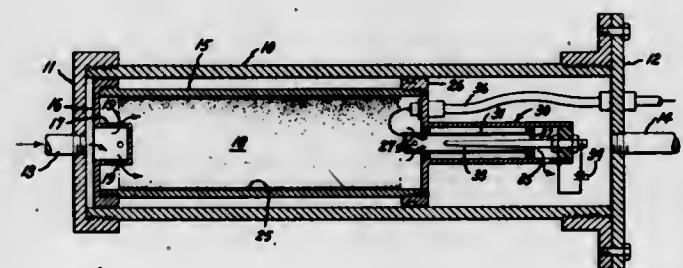
George F. Skala, Scotia, N.Y., assignor to General Electric Company

Filed Sept. 12, 1966, Ser. No. 578,884

Int. Cl. G01n 5/00

U.S. Cl. 250-83.6

1 Claim



This invention relates to gas analyzing apparatus and more particularly to an improved ion chamber apparatus for detecting the presence of submicron size particles entrained in a gaseous carrier.

METHOD AND APPARATUS FOR TIMING EXPOSURES IN X-RAY PHOTOGRAPHY

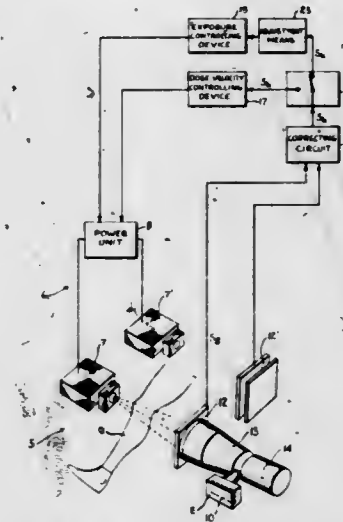
Stig Arne Ohlsson, Saab Aktiebolag, Linköping, Sweden

Filed Apr. 1, 1969, Ser. No. 812,101

Int. Cl. G03b 41/16; H05g 1/28, 1/38

U.S. Cl. 250-95

3 Claims



In X-ray photography, prime pulses are produced at a frequency dependent upon intensity of radiation affecting the film. During a predetermined interval early in each exposure, for a time determined by (but not necessarily equal to) the interval of opening delay of the X-ray generator switch means, at least one additional pulse is generated for each prime pulse, the additional pulses being emitted in time-delayed relation to their prime pulses and to one another. A counter receives all pulses and issues a switch-off signal upon receiving the last of a predetermined total number of pulses. Thus, film is subjected to equal quanta of radiation at every exposure even though radiation intensity varies.

3,573,462

SEALED CONTAINER WITH PRESSURE RELIEF FOR HAZARDOUS MATERIAL

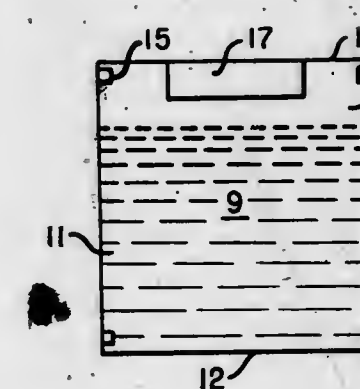
Charles A. Wilkins, Augusta, Ga., and Franklin D. R. King, Aiken, S.C., assignors to the United States of America as represented by the United States Atomic Energy Commission

Filed Feb. 4, 1969, Ser. No. 796,352

Int. Cl. G21f 3/00, 5/00

U.S. Cl. 250-108

7 Claims



A sealed vessel for containing a hazardous liquid or a liquid shield for radioactive material is provided with fusible plug assemblies within the vessel walls for melting and relieving internal pressure on high temperature exposure without loss of unvaporized liquid. The fusible plug assemblies are designed such that only those fusible plugs contacting the vapor space above the liquid will melt and are arranged such that at least one fusible plug will contact the vapor space regardless of container orientation.

3,573,463 LASER HETERODYNE TRANSCIEVER COMMUNICATION SYSTEM WITH AFC

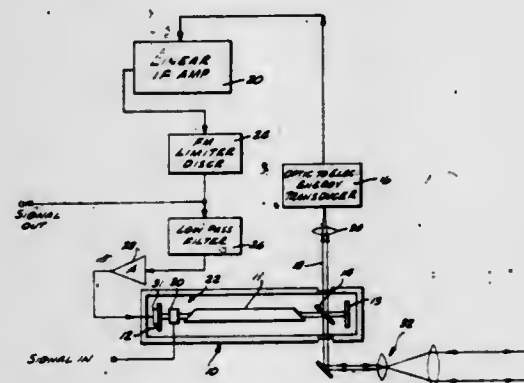
Frank E. Goodwin, Malibu, and Floyd C. Trimble, Newberry Park, Calif., assignors to Hughes Aircraft Company, Culver City, Calif.

Filed Nov. 1, 1967, Ser. No. 679,739

Int. Cl. H04b 9/00; H01s 3/10

U.S. Cl. 250-199

13 Claims



In the disclosed communication system, two transmitter-receiver devices are operatively associated. In each transmitter-receiver two laser beams of different frequencies, one of which laser beams is modulated according to an informational signal, are mixed by means of a beam splitter disposed either inside or outside of the laser oscillator cavity. One of the laser beams is generated by a laser oscillator included in one of the transmitter-receivers, the other laser beam being received from the other distant transmitter-receiver device. The mixed laser beam is translated by a semiconductor photodiode detector into an electrical signal which is then demodulated, the demodulated signal also being used to generate an AFC feedback signal for the laser oscillator.

3,573,464 PHOTOELECTRON MULTIPLIER

Masao Miya, Tokyo, Japan, assignor to Nippon Electric Company, Limited, Tokyo-to, Japan

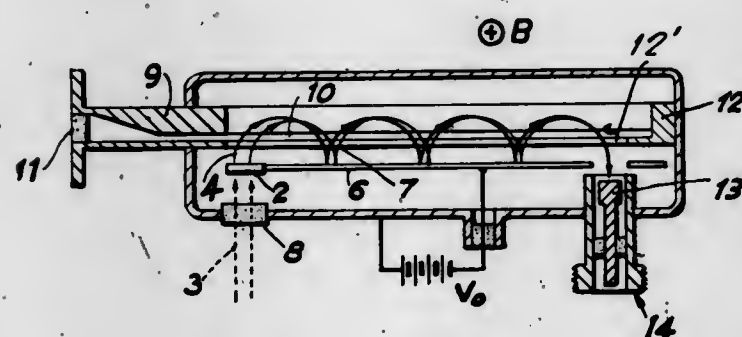
Filed Mar. 6, 1968, Ser. No. 710,860

Claims priority, application Japan, Oct. 13, 1967, 42/65820

Int. Cl. H04b 9/00

U.S. Cl. 250-199

5 Claims



The invention provides a photodetector responsive to modulated laser light. A multiplier phototube is used having a photocathode and a dynode arranged on the same plane. An electric field is used to accelerate the electrons from the photocathode and a high frequency standing wave is provided adjacent to the dynode. The trajectories of the electrons are phase compressed and the electron stream is highly localized.

3,573,465 GUNN EFFECT DRIVER FOR OPTICAL MODULATORS

Bernard G. King, Rumson, and Richard P. Riesz, Chatham, N.J., assignors to Bell Telephone Laboratories, Inc., Murray Hill, Berkeley Heights, N.J.

Filed Dec. 2, 1968, Ser. No. 780,346

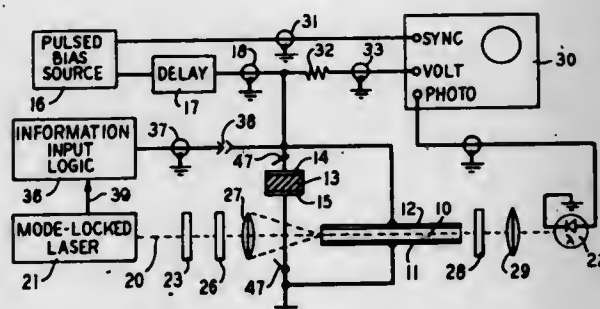
Int. Cl. H04b 9/00

U.S. Cl. 250-199

8 Claims

A Gunn effect device is utilized to provide pulses of the high amplitude and frequency needed to drive an optical

modulator, such as a lithium tantalate crystal for efficiently utilizing the bandwidth of light transmitted through the modulator. An acoustically absorbent mounting is provided for the modulator to suppress acoustical ringing resulting from piezoelectric effects in the modulator. The modulation system is initially aligned by simulating at a comparatively



low frequency the drive amplitudes in order to establish a maximum condition of modulation in the optical part of the system. Thereafter, signals at the Gunn effect device output rate are supplied for controlling the modulator. Information-representative signals coupled to the modulator through the Gunn effect device are synchronized with the optical system utilizing the modulator.

3,573,466 LIGHT DETECTOR DISCRIMINATOR

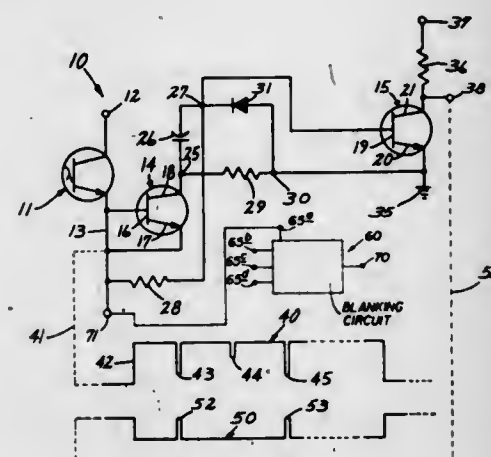
John L. Von Feldt, Rochester, Minn., assignor to Rochester Datronics, Inc., Rochester, Minn.

Filed July 22, 1968, Ser. No. 746,544

Int. Cl. G01j 1/16; H03k 19/14

U.S. Cl. 250-206

3 Claims



Two matched semiconductor junctions at least one of which is included in a transistor, connected in circuit with a pair of resistors and a capacitor so that each of the junctions receives a portion of an input current supplied by a light sensitive device, the portion received being dependent upon the ratio of the resistances, said capacitor acting to cause the transistor to switch from a normally saturated condition to a nonconducting condition when the current supplied by the light sensitive means drops below a predetermined level.

3,573,467 SMOKE DETECTOR UTILIZING GLOW TUBES FOR BOTH VOLTAGE COMPENSATION AND SIGNAL COUPLING

Alfred W. Vasek, 222 Linwood St., Abington, Mass.

Original application Nov. 7, 1966, Ser. No. 592,617, now Patent No. 3,461,443, dated Aug. 12, 1969. Divided and this application June 24, 1969, Ser. No. 835,961

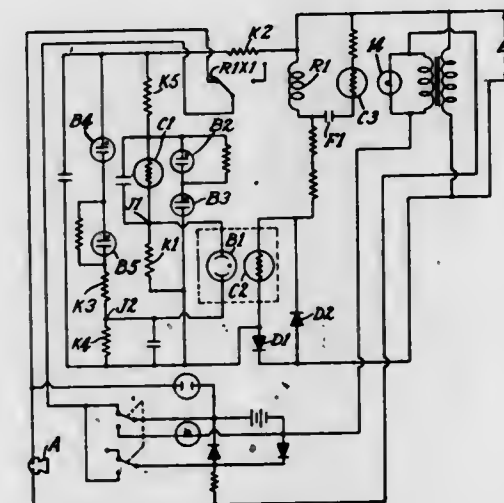
Int. Cl. G01n 21/12, 21/26; H01j 39/12

U.S. Cl. 250-206

1 Claim

A circuit for the photoelectric detection of smoke is provided with means for compensating for fluctuations in the output voltage due to variations in the main supply voltage which energizes both the light source and the photocell. This compensating means utilizes a voltage compensating circuit

which comprises glow tubes and which is coupled to the photocell via another glow tube. The photocell itself is connected in series with a resistor, the series combination of the resistor and photocell are connected across the main



supply voltage. The junction between the photocell and resistor is connected to the coupling glow tube which in turn is photon coupled to a photosensitive resistor which, when activated, inhibits rectification in a DC relay holding circuit causing the relay to release thereby activating an alarm.

3,573,468 PHOTOELECTRIC INCREMENTAL TRANSDUCER FOR 4-PHASE SIGNALS COMPRISING MEANS FOR GEOMETRICALLY SPLITTING THE LIGHT BEAMS

Karl Lang, Atzbach, Kreis Wetzlar, Germany, assignor to Ernst Leitz G.m.b.H., Wetzlar, Germany

Filed Oct. 16, 1969, Ser. No. 866,845

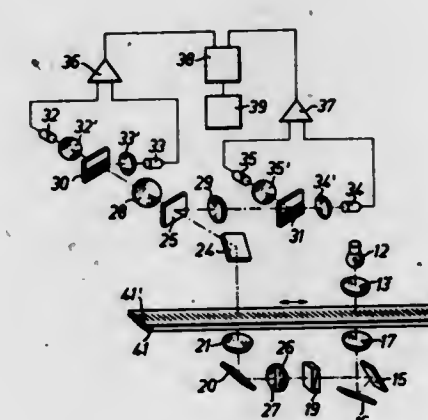
Claims priority, application Germany, Oct. 19, 1968,

P 18 04 028.3

Int. Cl. H01j 3/14, 39/12; G01d 5/34

U.S. Cl. 250-209

5 Claims



In a photoelectric incremental transducer wherein the grating is reproduced after a polarizing image splitting step, either onto a second grating or onto itself and indexing images are reproduced thereafter by way of a polarizing splitter and position-defining signals are obtained at least two photoelectric receivers, the improvement comprising the insertion of a geometric splitter which produces an image shift of one-half a graduation interval in the image beam path behind the place of reproduction in the plane conjugate with respect to the geometric splitter, and means are provided for the separate reception of the different beams.

3,573,469 OPTICALLY CONTROLLED PHASE ADJUSTMENT FOR ELECTRICAL SIGNALS

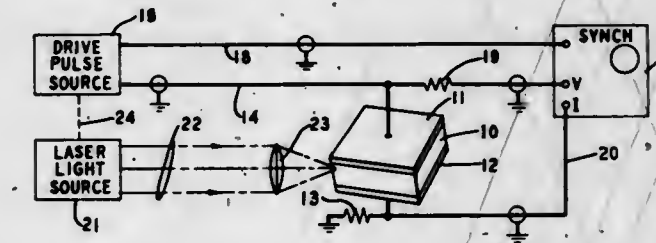
Richard P. Riesz, Chatham, N.J., assignor to Bell Telephone Laboratories, Inc., Murray Hill, Berkeley Heights, N.J.

Filed Nov. 15, 1968, Ser. No. 776,220

Int. Cl. H01l 15/00; H03k 3/26

U.S. Cl. 250-211

12 Claims



A semiconductor device of the type which nucleates and propagates high intensity electric field domains in response to the application of an electric field across the device is illuminated at a part of the device where such domains are nucleated and with sufficient energy density to alter the phase relationship of the propagated domains with respect to the applied electric field. Such a device is employed for gating pulses of electromagnetic energy through an electro-optical modulator to an optical delay line for reentering digital information in the delay line as it is coupled from the output of such line.

3,573,470 PLURAL OUTPUT OPTIMETRIC SAMPLE CELL AND ANALYSIS SYSTEM

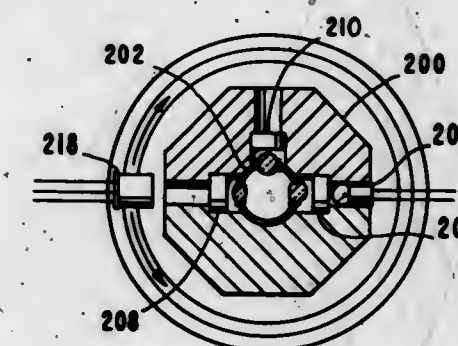
Floyd C. Haley, La Canada, Calif., assignor to California Institute of Technology, Pasadena, Calif.

Filed Mar. 28, 1968, Ser. No. 716,885

Int. Cl. G01n 21/26; G02b 5/14; H01j 5/02

U.S. Cl. 250-218

15 Claims



Apparatus suitable for receiving a sample for optometric analysis along with a method of fabricating the apparatus is disclosed. The apparatus includes a sample cell comprising an opaque hollow tubing. A plurality of apertures are defined in the wall of the tubing and a lens barrel which extends beyond the opposite surfaces of the wall is supported within at least one of the apertures. A glass lens is mounted in the lens barrel. A housing is provided with a first channel for receiving the sample cell and a further series of channels extending from the exterior of the housing to the sample cell apertures. A filter element is housed in each of these latter channels. These channels also slidably receive an excitation light source or a photodetector cell to permit selective focusing thereof. A sample cell containing at least three apertures in the walls thereof can be mounted for rotation relative to a light source or photodetector means for simultaneous or alternate optometric determination of the components of a single sample. The sample cell is fabricated by supporting a lens barrel within the aperture. A molten portion of glass is deposited in the lens barrel and cooled while in a horizontal position to form a lens having an acceptable angle of 130° to 170° at an aperture of 7° or below.

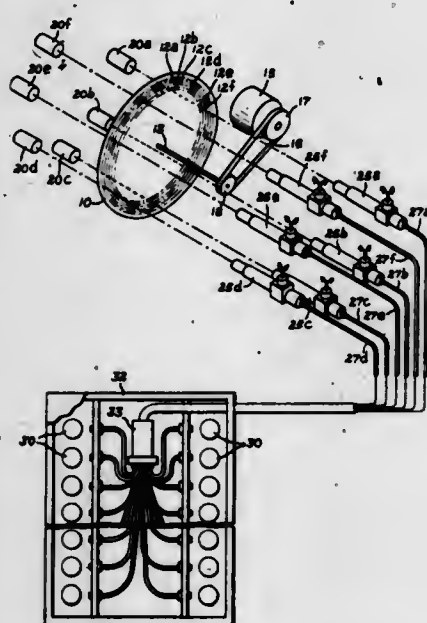
3,573,471

OPTICALLY ENCODED DISK READ OUT SYSTEM EMPLOYING OPTICAL FIBERS

Edwin R. Kolb, Cleveland, Ohio, assignor to Harris-Intertype Corporation, Cleveland, Ohio
Continuation-in-part of application Ser. No. 287,047, June 11, 1963, now Patent No. 3,307,172. This application Jan. 9, 1967, Ser. No. 608,161
Int. Cl. G01n 21/30

U.S. Cl. 250-219

1 Claim



Binary data optically recorded in circular tracks on a rotating member is converted into electrical signals by illuminating a limited area on the member, magnifying the image of the illuminated area and projecting that image onto a fiber optic assembly having optical fibers for each track on the member which route the light information to photoelectric transducers and convert the light information into electrical signals. Both optical and mechanical magnifying means are used to permit high density radial and circumferential packing of the binary data while permitting the use of relatively large but highly sensitive photoelectric transducers.

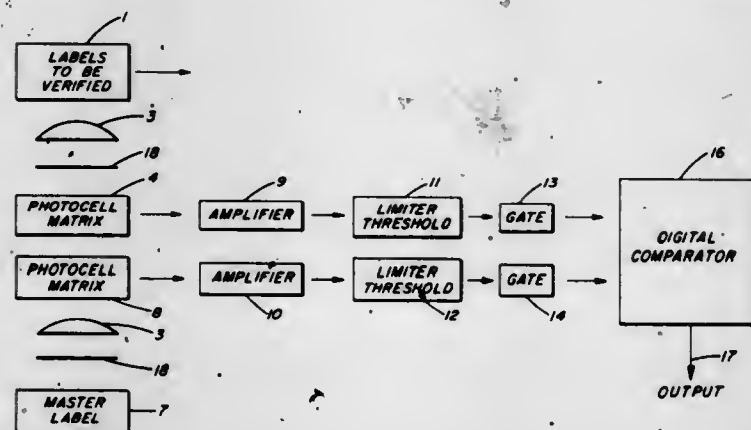
3,573,472

LABEL VERIFICATION SYSTEM USING PHOTOCCELL MATRICES

Michael Madalo, Whitehouse Station, N.J., assignor to American Cyanamid Company, Stamford, Conn.
Filed Apr. 13, 1970, Ser. No. 27,899
Int. Cl. G08c 9/06

U.S. Cl. 250-219

6 Claims



Verification of symbols such as on labels is effected by imaging each label to be verified onto a matrix of photocells and imaging an authentic label onto another matrix of photocells. The outlines of the symbols strike different photocells in the matrices causing a response from each photocell depending on the amount of energy it receives. The output from each photocell is separately amplified, either by individual separate amplifiers or by a single amplifier for

each matrix which is electronically scanned across photocell outputs in conventional manner. The outputs from each photocell are limited or otherwise electronically processed so that responses are produced above or below a threshold, depending on whether the photocells encountering the image of the symbols give out more or less energy and these pulses or outputs, which are in digital form, are then compared in a conventional digital comparator. If the label to be verified gives the same signal as an authentic label, the comparator does not have any output and another label can then be verified. If the label is not authentic, an output from the digital comparator sounds an alarm and can remove the container bearing the label from a moving stream. Preferably the symbols contain photoluminescent substances and the matrix of photocells is provided with suitable filters, so that when the labels are illuminated with ultraviolet light photocell responses are at a much higher degree of contrast.

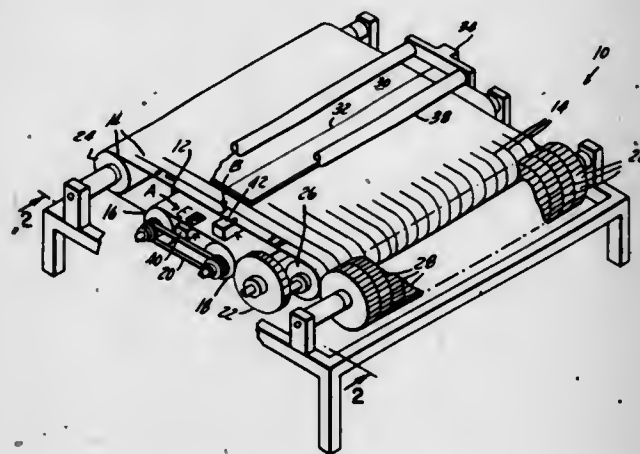
3,573,473

RADIATION SENSITIVE DIGITAL MESSAGE ENTRY DEVICE

Zeev Lieser, Elizabeth, N.J., assignor to The United States of America as represented by the Secretary of the Navy
Filed Oct. 6, 1969, Ser. No. 863,778
Int. Cl. G08c 9/06

U.S. Cl. 250-219

10 Claims



A digital message entry device wherein a wide format scroll displaying instructions for message composition is placed in cooperative encompassing relation to a plurality of message scrolls with means for selectively moving each scroll to provide message storage and display and in which a self-energizing light source and associated photodiode means are provided to provide readout means for bulk transmission to a central location to be decoded, displayed, switched or acted upon.

3,573,474

ERROR SIGNAL GENERATING SYSTEM

Floyd Grosseohme, Cincinnati, Ohio, assignor to General Electric Company

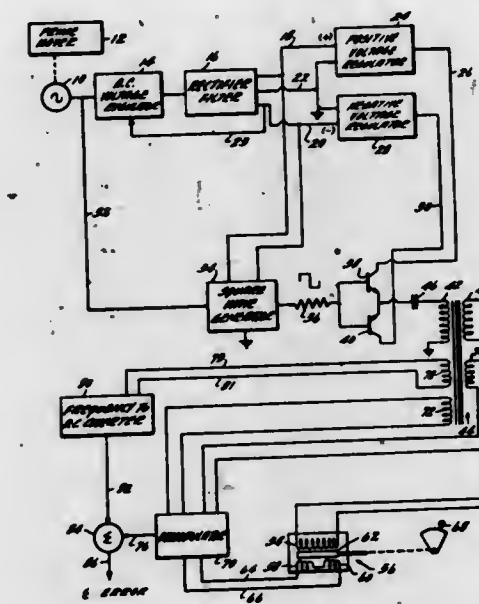
Filed May 9, 1969, Ser. No. 870,831
Division of Ser. No. 506,993, Nov. 9, 1965, Pat. No. 3,501,687.
Int. Cl. H02p 9/04

U.S. Cl. 290-40

1 Claim

A system for producing an error signal which represents the difference between actual and desired prime mover speed. The output of a prime mover driven generator is rectified to provide positive and negative signals which are alternately impressed on a transformer primary winding via a switching circuit controlled by a square wave generator, the frequency of which is proportional to engine speed. A first secondary winding of said transformer feeds a variable coupling transducer, the output of which feeds one input of a phase responsive demodulator. The coupling of said transducer being determined by a prime mover controller setting. A second transformer secondary winding feeds a frequency to DC converter to provide a DC signal, the magnitude of which thus represents the actual prime mover speed. Third and fourth transformer secondary windings feed

inputs of said phase responsive demodulator, the output of which thus provides a desired prime mover speed signal.



Finally, a summing network combines the actual and desired speed signals to produce an error signal which may be employed to control the rate of the prime mover.

3,573,475

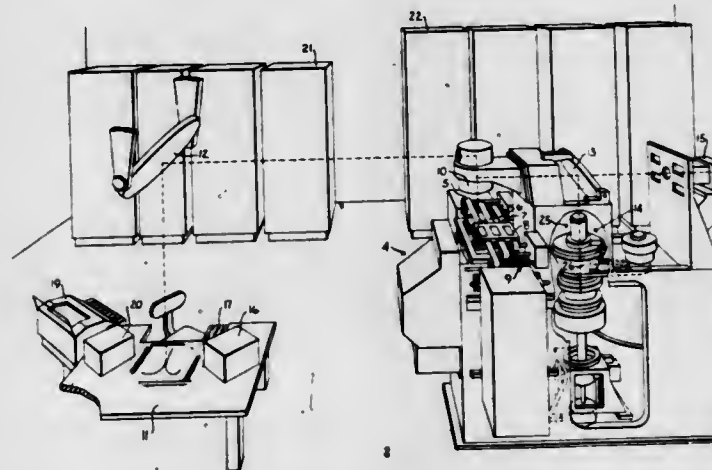
MEANS FOR ADJUSTING SENSITIVITY OF SPIRAL PATH SCANNING MECHANISM

Sten Nordlund, and Bengt Wetterbrandt, Jonkoping, Sweden, assignors to Saab Aktiebolag, Linkoping, Sweden
Filed Aug. 28, 1969, Ser. No. 853,830
Claims priority, application Sweden, Aug. 28, 1968, 11533/68

Int. Cl. G01n 31/30; G02b 17/00; H01j 31/14

U.S. Cl. 250-219

5 Claims



In spiral scanning apparatus for bubble chamber photographs, comprising an elongated plane mirror which is lengthwise inclined upwardly and outwardly to an axis about which it rotates, to reflect toward the axis light shone downwardly onto it, and a periscope which rotates to have its eye face the mirror and simultaneously moves axially to scan along it, superimposed slotted fixed and movable mask means in front of the periscope eye enable sensitivity and selectivity to be adjusted for different photographs.

3,573,476

APPARATUS FOR DETERMINING REFLECTIVE COLOR INDEX OF FIBROUS SAMPLES

Allan F. Falcoff, and James N. Guthrie, Seaford, Del., assignors to E. I. duPont de Nemours and Company, Wilmington, Del.

Filed Nov. 20, 1968, Ser. No. 777,310

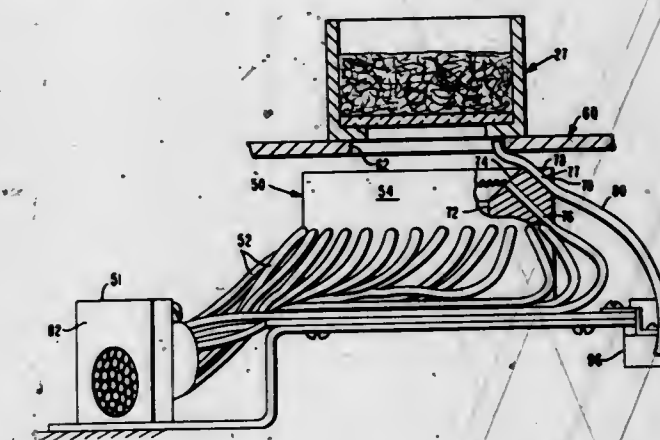
Int. Cl. G02b 5/16; G01j 3/50

U.S. Cl. 250-227

7 Claims

An apparatus for uniformly illuminating a fiber sample in a colorimeter wherein a plurality of fiber optic light guides are

arranged circumferentially around the sample. One end of each light guide is directed upwardly toward the sample and the other end of each light guide is positioned in the directed path of an illumination source to receive light therefrom. An



auxiliary light guide directed toward the sample holder and coupled to the electrical measuring circuitry of the colorimeter senses the absence of a sample holder and deactivates the electrical components of the colorimeter.

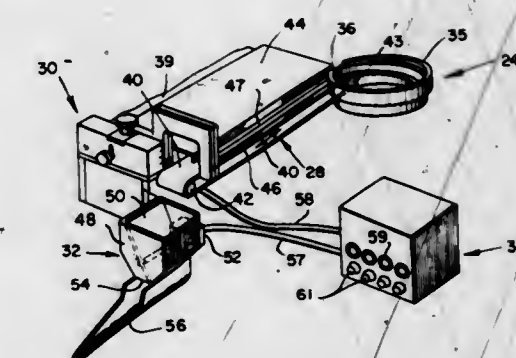
3,573,477

RADIATION SENSITIVE APPARATUS FOR DETECTING CONVEYED ARTICLES

Michael C. Klapes, Lynnfield, Mass., assignor to Delta Engineering Corporation, Winchester, Mass.
Filed Sept. 17, 1968, Ser. No. 760,340
Int. Cl. G06m 7/00

U.S. Cl. 250-223

7 Claims



An improved article-detecting apparatus for use with a counting machine of the type having a conveyor for carrying articles to be counted from a supply hopper to a batching station, the detecting apparatus is adapted to sense each article on said conveyor and to provide a signal output for a counter in response to each article that is sensed. The detecting apparatus comprises a light source for directing a substantially horizontal beam of light laterally across the conveyor to a photocell, and means for vertically adjusting the light beam and photocell relative to the conveyor.

3,573,478

OPTICAL SECTOR SWITCH APPARATUS FOR INDICATING DEGREE OF ANGULAR MOVEMENT BETWEEN TWO MOVABLE SURFACES

Kenneth J. Stempler, Bronxville, N.Y., assignor to the United States of America, as represented by the Secretary of the Air Force.

Filed Feb. 24, 1969, Ser. No. 801,628

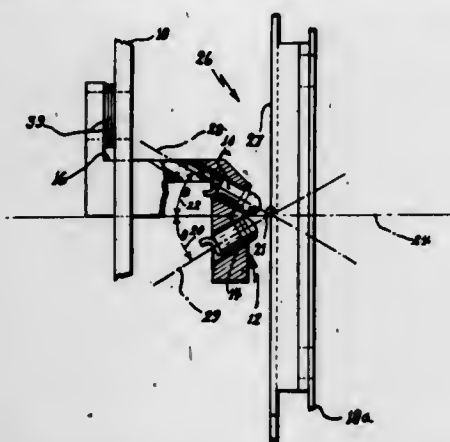
Int. Cl. H01j 39/12

U.S. Cl. 250-239

9 Claims

An apparatus for indicating the degree of angular movement between two relatively moveable surfaces is provided and is comprised of an infrared radiation emitter and an infrared radiation sensor, both mounted to one of the moveable surfaces, and a reflective surface of predetermined extent mounted to the other moveable surface. Both emitter

and sensor are solid state devices. The emitter and sensor are placed such that their geometrical axes approximately coincide at the reflector surface to reflect the emitted radiation back toward the sensor to activate indicating



circuitry associated with the sensor to indicate the position of the moveable surfaces with respect to each other. When the reflector is not positioned such that it receives radiation from the emitter, the indicating circuitry will not be activated.

3,573,479

GENERATOR FLASHLIGHT

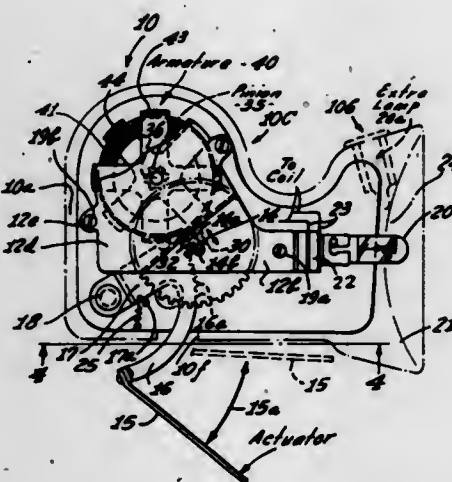
Harold F. Rieth, 911 22nd St., Santa Monica, Calif.

Filed Nov. 17, 1967, Ser. No. 683,866

Int. Cl. H02p 9/04

U.S. Cl. 290-1

13 Claims



A reciprocating actuator meshes with a pinion and during an actuating stroke in one direction the pinion is placed first in a first position and rotates. A gearwheel rotates with the pinion and meshes with a second pinion on the shaft of a rotor when the first pinion rotates in the first position. At the end of the stroke the pinion meshing with the actuator rolls into a second position in which the gearwheel is disengaged from the pinion on the rotor. During the return stroke of the actuator, pinion and gearwheel rotate in the opposite direction and disengage from the pinion on the rotor. The disclosure shows a generator powering the lamp in the flashlight.

3,573,480

ELECTRIC CRANKING MOTOR AUTOMATIC DISCONNECT AND LOCKOUT CIRCUIT

Donald L. Cummins, Anderson, Ind., assignor to General Motors Corporation, Detroit, Mich.

Filed Sept. 17, 1969, Ser. No. 858,724

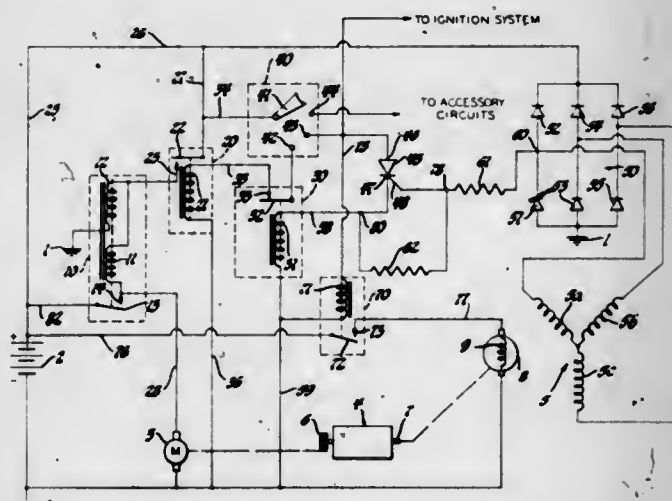
Int. Cl. F02n 11/00

U.S. Cl. 290-38

2 Claims

An electric cranking motor automatic disconnect and lockout circuit. The normally open contacts of a cranking motor solenoid-operated switch, having the operating coil thereof connected across a source of direct current potential through the normally open contacts of a first relay, are connected in series with the cranking motor across a source

of direct current potential. Upon the closure of an electric switch, the source of direct current potential energizes the operating coil of the first relay, through the electric switch and the normally closed contacts of a second relay in series, to close the associated normally open contacts thereof which establish an energizing circuit for the operating coil of the solenoid-operated switch. At least a portion of the output potential of an electric generator driven by the cranked engine is applied across the gate-cathode electrodes of a silicon-controlled rectifier, the anode-cathode electrodes of which are connected in series with another contact of the electric switch and the operating coil of the second relay across the source of direct current potential. When the generator output potential is of sufficient magnitude to



produce gate-cathode current through the silicon-controlled rectifier, the resulting anode-cathode current flow therethrough establishes an energizing circuit for the operating coil of the second relay to open the associated normally closed contacts, thereby interrupting the energizing circuit for the operating coil of the first relay to permit the associated normally open contacts to open which interrupt the energizing circuit for the operating coil of the solenoid operated switch. The silicon-controlled rectifier is maintained conductive while the electric switch is closed to the anode-cathode electrodes thereof, consequently, the operating coil of the second relay remains energized thereby preventing a reengagement of the cranking motor while the engine is in the running mode.

3,573,481

ELECTRIC CRANKING MOTOR AUTOMATIC DISCONNECT AND LOCKOUT CIRCUIT

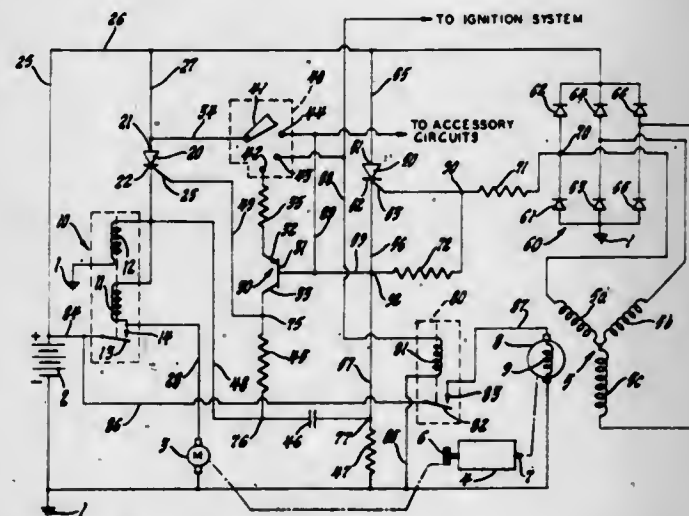
Donald L. Cummins, Anderson, Ind., assignor to General Motors Corporation, Detroit, Mich.

Filed Sept. 24, 1969, Ser. No. 860,715

Int. Cl. F02n 11/00

U.S. Cl. 290-28

2 Claims



An electric cranking motor automatic disconnect and lockout circuit. The normally open contacts of a cranking motor solenoid-operated switch, having the operating coil thereof connected across a source of direct current potential

through the anode-cathode electrodes of a first silicon-controlled rectifier, are connected in series with the electric cranking motor across a source of direct current potential. Upon the closure of an electric switch, the source of direct current potential is applied across the emitter-base electrodes and the emitter-collector electrodes of a type PNP transistor. The conducting transistor produces a trigger signal which is applied across the gate-cathode electrodes of the first silicon-controlled rectifier to render this device conductive to establish an energizing circuit for the operating coil of the solenoid operated switch and a charging circuit for a capacitor. At least a portion of the output potential of an electric generator driven by the cranked engine is applied across the gate-cathode electrodes of a second silicon-controlled rectifier, the anode-cathode electrodes of which are connected in series with the capacitor across the anode-cathode electrodes of the first silicon-controlled rectifier and across the base-emitter electrodes of the transistor. When the generator output potential is of sufficient magnitude to produce gate-cathode current through the second silicon-controlled rectifier, the resulting anode-cathode current flow therethrough establishes a discharge circuit for the capacitor in an inverse polarity relationship across the anode-cathode electrodes of the first silicon-controlled rectifier to extinguish this device, thereby interrupting the energizing circuit for the operating coil of the solenoid-operated switch, and effectively connects the emitter-base electrodes of the transistor together to extinguish this device to remove the trigger signals from the first silicon-controlled rectifier thereby preventing the retriggering of the first silicon-controlled rectifier after the capacitor has discharged.

3,573,482

ELECTRIC FUEL PUMP CONTROL CIRCUIT

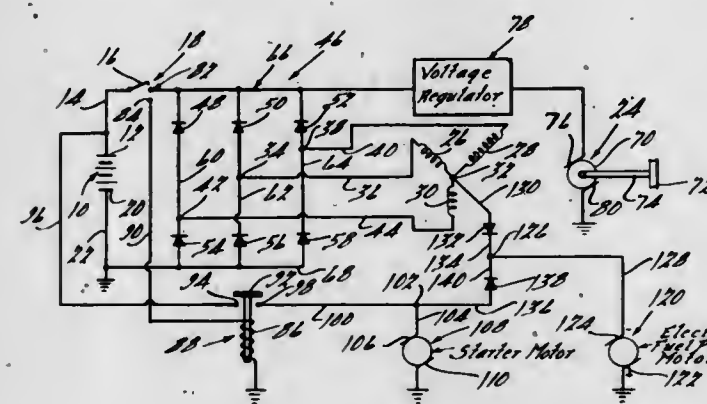
Kenneth R. Brooks, Dexter, and Jacques Mosier, Ypsilanti, Mich., assignors to Ford Motor Company, Dearborn, Mich.

Filed July 10, 1969, Ser. No. 840,650

Int. Cl. F02n 11/00

U.S. Cl. 290-38

7 Claims



An electric fuel pump control circuit for an electric fuel pump that furnishes fuel for an internal combustion engine in which electrical energy is supplied to the fuel pump during starting operations from the electrical storage battery of the internal combustion engine and during normal running operations, after starting operations have been terminated, is supplied from one of the output windings of an alternator which is operated by the internal combustion engine. The electric fuel pump is energized, during starting operations, by battery and system voltage and subsequent to starting operations is energized from the alternator output windings at an average voltage of substantially half the battery and system voltage and at a peak voltage which is proportional to engine speed.

3,573,483

POWER SUPPLY CONTROL APPARATUS

Gregory C. White, Evansville, Ind., assignor to Essex International, Inc., Fort Wayne, Ind.

Filed May 2, 1969, Ser. No. 821,241

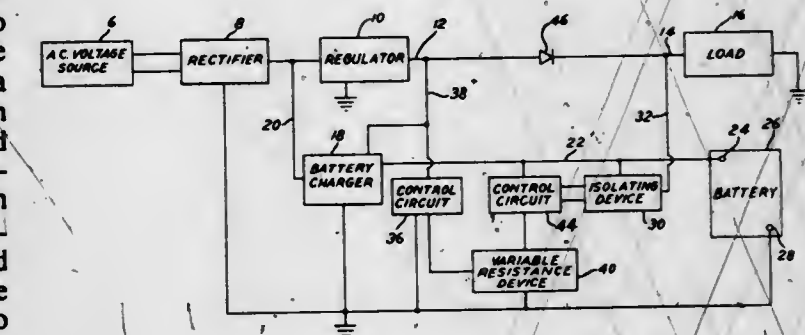
Int. Cl. H02j 7/00

U.S. Cl. 307-66

3 Claims

In the event a primary voltage source fails, an auxiliary voltage source may be provided to a load by a battery and an

isolating transistor that conducts current to the load from the battery. The isolating transistor is controlled by a first control circuit that causes the transistor to conduct if the voltage produced by the primary voltage source decreases below a predetermined value. The isolating transistor is also



controlled by a second control circuit that returns the isolating transistor to its nonconductive state if the voltage produced by the battery decreases below a predetermined value. Both the first and second control circuits preferably comprise a Zener diode and a resistor.

3,573,484

PULSE CIRCUIT

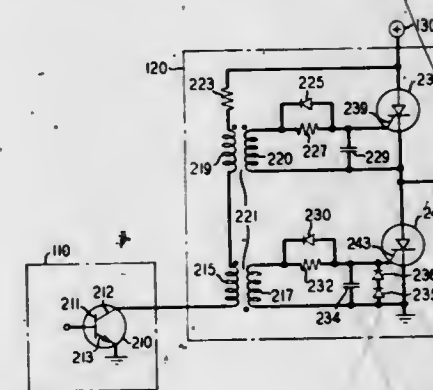
Robert W. Engroff, St. Charles, Ill., assignor to Bell Telephone Laboratories, Incorporated, Murray Hill, Berkeley Heights, N.J.

Filed Aug. 6, 1968, Ser. No. 750,506

Int. Cl. H03k 17/00

U.S. Cl. 307-252

12 Claims



A pulse circuit includes a pair of controlled switches connected in series with a voltage source. The gates of the switches are coupled through a network to a pulse source. The network operates to disable one gate while the other gate is enabled by a pulse from the pulse source so that the concurrent closing of both switches is prevented.

3,573,485

COMPUTER MEMORY STORAGE DEVICE

Delbert L. Ballard, 9352 Van Alden, Northridge, Calif.

Filed June 24, 1968, Ser. No. 739,436

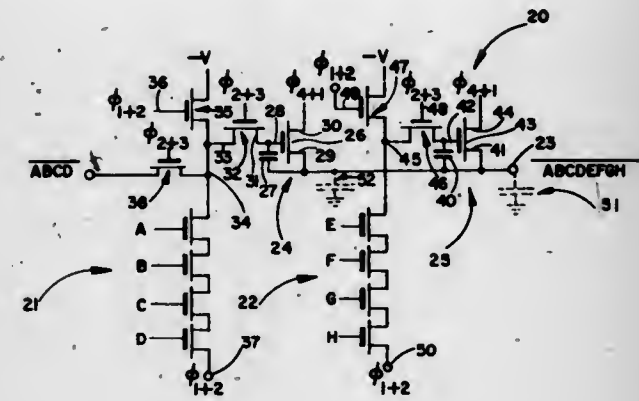
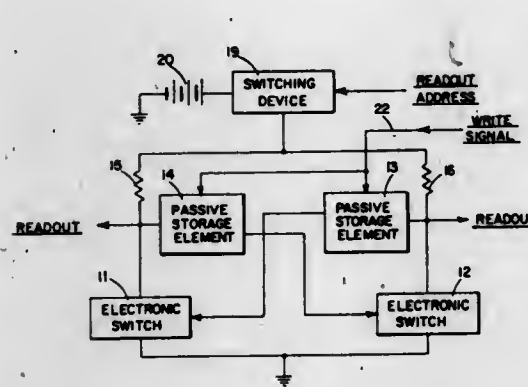
Int. Cl. G11c 11/02, 11/22; H03k 17/80

U.S. Cl. 307-88

12 Claims

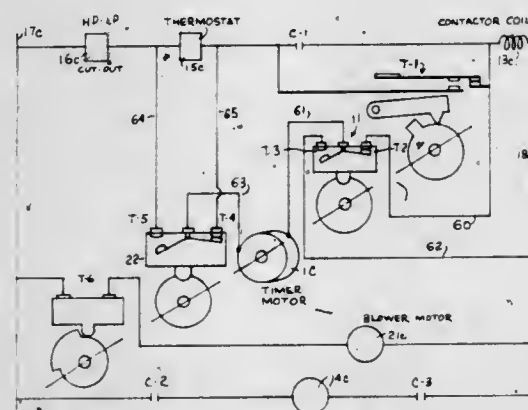
A flip-flop circuit is formed with a pair of active electronic-switching elements. Connected in circuit with at least one of these switching elements as an impedance coupler is a passive storage element. A digital signal to be stored is written into the passive storage element, thereby changing its effective impedance in the circuit. The readout signal is obtained from the electronic-switching elements by providing power to such active switching elements in

response to a readout address, the electronic-switching elements assuming a conductive or nonconductive state in accordance with the effective circuit impedance of the gates in each logic function, the multiphase gate can be operated at a higher clock frequency.



accordance with the effective circuit impedance of the gates in each logic function, the multiphase gate can be operated at a higher clock frequency.

3,573,486
CONDITION CONTROL DEVICE AND SYSTEM
John L. Harris, Delafield, Wis., assignor to Deltrol Corp., Bellwood, Ill.
Filed Aug. 14, 1969, Ser. No. 850,011
Int. Cl. H01h 43/12
U.S. Cl. 307-116

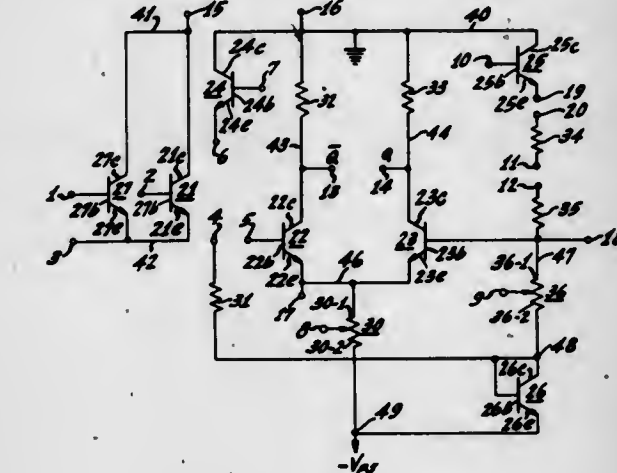


Protection against refrigeration compressor burnout by short cycling is provided by a timer having an electric motor. This motor is initially energized through a circuit in series with a thermostat and the contactor coil. The motor is then transferred to a circuit shunting the thermostat and then the timer load switch closes energizing the contactor. This shunts the timer motor and stops it. When the thermostat is satisfied, it drops out the contactor and breaks the shunt circuit for the timer motor allowing it to run back to the starting point where the motor is again placed in series with the thermostat. A variable delay is provided by a second timer motor switch which first energizes the motor in parallel with the contactor coil.

3,573,487
HIGH SPEED MULTIPHASE GATE
Robert W. Polkinghorn, Huntington Beach, Calif., assignor to North American Rockwell Corporation
Filed Mar. 5, 1969, Ser. No. 804,543
Int. Cl. H03k 19/08
U.S. Cl. 307-205

Buffering devices of a multiphase gate are connected either in series or parallel with individual logic functions implementing a composite multiple phase gate for either ANDing or ORing the functions at the output of the

3,573,488
ELECTRICAL SYSTEM AND LSI STANDARD CELLS
Howard R. Beelitz, Princeton, N.J., assignor to RCA Corporation
Filed Sept. 5, 1967, Ser. No. 665,344
Int. Cl. H03k 19/08
U.S. Cl. 307-207

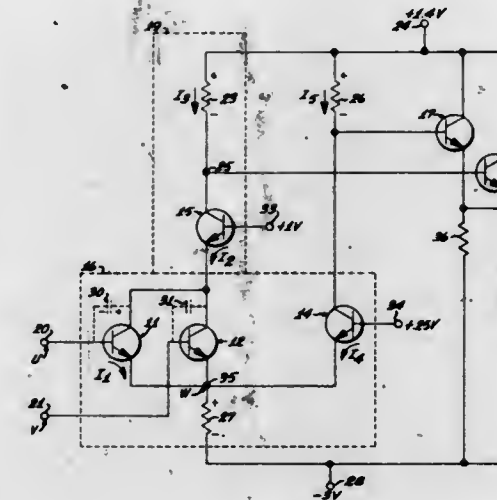


A large scale integrated (LSI) array of standard (i.e. unit) cells and systems implemented thereby is described. The standard cell includes a current mode switching transistor pair, a pair of fan-in expander transistors, a further transistor useful either as an output emitter-follower or as another fan-in transistor and a V_{ref} deriving circuit which includes some resistors and another pair of transistors. Both committed and uncommitted connecting points are provided for the cell whereby the system designer is given the flexibility of specifying the functional identity of a cell, a group of cells, parts of a cell and various combinations thereof by means of a design connection pattern of the various uncommitted connecting points.

3,573,489
HIGH SPEED CURRENT-MODE LOGIC GATE
Bohumir Sramek, Phoenix, Ariz., assignor to General Electric Company
Filed May 29, 1969, Ser. No. 845,924
Int. Cl. H03k 19/34, 19/30
U.S. Cl. 307-215

A common-base transistor amplifier in the collector circuit of a current-mode logic gate reduces the Miller effect or

multiplication of capacitance between the base and collector to one of the input stages of the differential amplifier and of transistors connected to the signal-input terminals. This maintains the input stages in a balanced condition in the

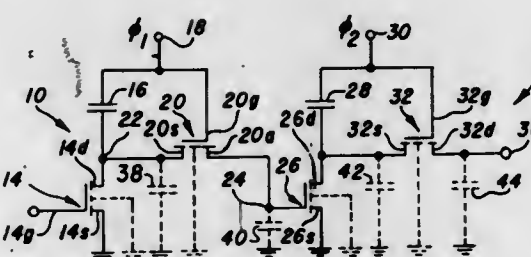


absence of input signals applied to the other input stage as well as in response to input signals applied thereto.

3,573,492
NOISE IMMUNITY CIRCUIT
Thomas Austin Bridgewater, Indianapolis, Ind., assignor to RCA Corporation
Filed June 2, 1969, Ser. No. 829,395
Int. Cl. H03k 5/20
U.S. Cl. 307-234

increases the operating speed and increases the fan-out of the logic gate.

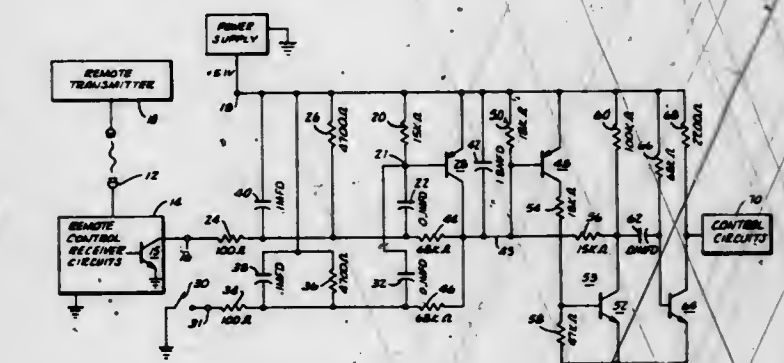
3,573,490
CAPACITOR PULL-UP REGISTER BIT
Leonce J. Sevin, Jr., and Donald J. Redwine, Dallas, Tex., assignors to Texas Instruments Incorporated, Dallas, Tex.
Filed Dec. 30, 1968, Ser. No. 787,712
Int. Cl. G11c 19/00; H03k 21/00, 23/08
U.S. Cl. 307-221



Injection current modes in an MOS capacitor pullup shift register bit are eliminated or minimized by addition of circuit elements between a driver transistor switch and a coupling transistor switch. In one form, this additional circuitry includes a push-pull stage of two transistor switches interconnected between the driver switch and the coupling switch. In an MOS transistor configuration of a shift register, an alloy diode is connected in parallel to the PN diode of the coupling transistor to minimize the effects of injection currents. Injection currents are also controlled in an MOS transistor configuration of a shift register by a P-type diffusion around each transfer stage of a shift register bit.

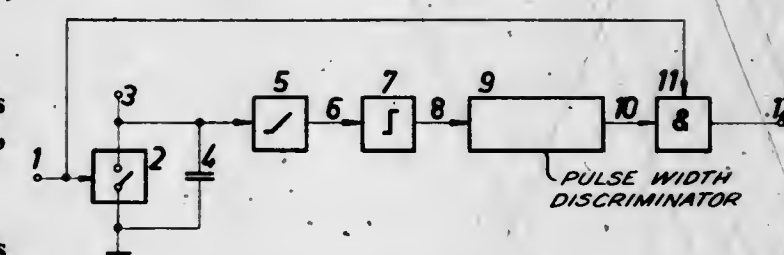
3,573,491
VIDEO LOGARITHMIC AMPLIFIER
Jerry E. Goss, and Roger R. Hansen, Owego, N.Y., assignors to International Business Machines Corporation, Armonk, N.Y.
Filed Aug. 28, 1967, Ser. No. 663,809
Int. Cl. G06g 7/12
U.S. Cl. 307-229

A video (wideband) logarithmic amplifier employs a high gain differential amplifier that has an output stage which includes inter alia an element having a logarithmic transfer characteristic. The output stage generates a feedback signal



A remote control system includes a noise immunity circuit providing a short duration pulse output in response to an input signal of a predetermined duration. The circuit includes a capacitor which is initially discharged and thereafter charged through a first charging path. When the capacitor becomes charged to a predetermined level, a multivibrator circuit is triggered and provides a second charging path for the capacitor. An output stage is coupled to the multivibrator to provide an output pulse to remote control circuits when the multivibrator is triggered.

3,573,493
SELECTION CIRCUIT FOR SELECTING PULSES FROM A PULSE SEQUENCE IN DEPENDENCE ON THE INTERPULSE INTERVAL THEREBETWEEN
Gerhard Kamin, Traisa, Germany, assignor to Fernseh GmbH, Darmstadt, Germany
Filed July 2, 1969, Ser. No. 838,424
Claims priority, application Germany, July 4, 1968, P 17 62 541.1
Int. Cl. H03k 5/20
U.S. Cl. 307-234

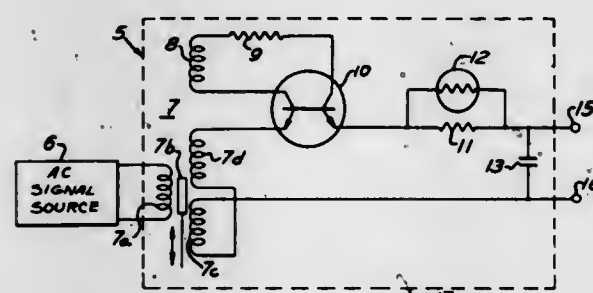


A capacitor as charged linearly with respect to time during the interpulse intervals of a pulse sequence and short

circuited during the occurrence of the pulses. The voltage on the capacitor is supplied to a threshold circuit set to a predetermined threshold value. The output of the threshold circuit, shaped by a trigger circuit, is applied to a pulse width discriminator. The output of the pulse width discriminator comprises pulses corresponding to the input pulses to the discriminator when these input pulses exceed a predetermined width. The input pulse sequence and the output of the pulse width discriminator are applied to the inputs of an AND gate, at whose output thus appear those pulses for which the interspace interval is less than a predetermined value.

3,573,494 DIFFERENTIAL TRANSFORMER DEMODULATING CIRCUIT

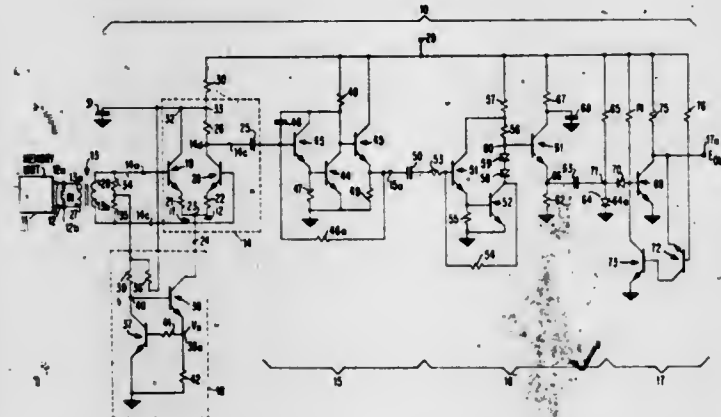
Grover K. Houpt, Wayne; Edward T. Thomson, Phoenixville, and Joseph A. Kihm, King of Prussia, Pa., assignors to Automatic Timing & Controls, Inc., King of Prussia, Pa.
Filed Jan. 12, 1968, Ser. No. 697,470
Int. Cl. H03k 5/20; H01r 5/00
U.S. Cl. 307-235 8 Claims



A demodulating circuit is disposed in series in the secondary winding circuit of a differential transformer. The demodulation circuit has an auxiliary winding magnetically coupled to the primary winding and the ends of the auxiliary winding are coupled to two electrodes of a solid-state device which also has two emitters. The two emitters of the device are connected in series with the secondary winding of the transformer and with a smoothing network for the demodulated AC voltage.

3,573,495 THRESHOLD CIRCUIT APPARATUS EMPLOYING INPUT DIFFERENTIAL AMPLIFIER FOR TEMPERATURE STABILIZING THE THRESHOLD LEVEL THEREOF

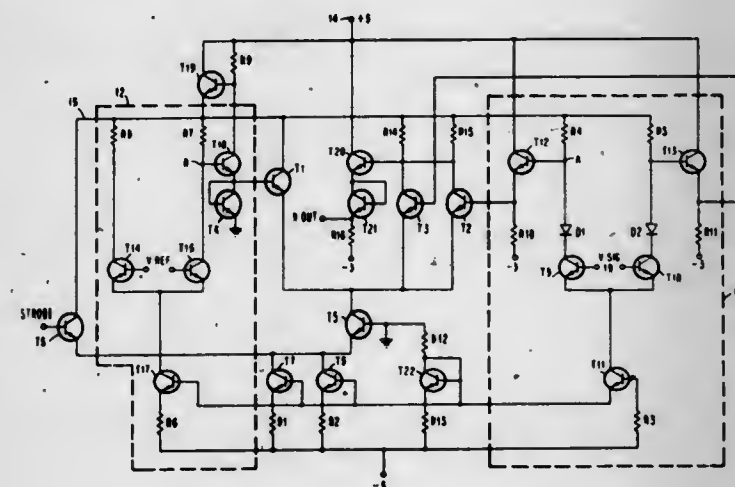
Melvin P. Xylander, Apalachin, N.Y., assignor to International Business Machines Corporation, Armonk, N.Y.
Filed Aug. 26, 1968, Ser. No. 755,069
Int. Cl. H03k 5/20 6 Claims
U.S. Cl. 307-235



The gain of a difference amplifier is controlled as a function of temperature to offset variations, which are due to temperature changes, in the threshold level of a threshold device.

3,573,496 DC SENSE AMPLIFIER

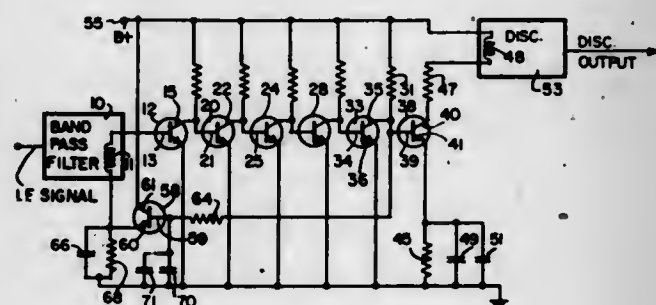
Joseph A. Lake, Jr., Lincoln Park, N.J., and Hannon S. Yourke, Poughkeepsie, N.Y., assignors to International Business Machines Corporation, Armonk, N.Y.
Filed Nov. 19, 1968, Ser. No. 776,947
Int. Cl. H03k 5/20 8 Claims
U.S. Cl. 307-235



This specification describes a comparator for comparing memory sense signals with a reference potential and for providing an output indicative of whether the sense signals are larger or smaller than the reference potential. The comparator includes a differential circuit that compares the output of a signal amplifier, for the sense signals, to the voltage drop across a forward biased diode. Simultaneously, the output of a model or reference amplifier, which amplifies the reference potential is compared to the diode voltage drop and the output levels of the model amplifier and the signal amplifier are simultaneously adjusted by a feedback network until the output of the model amplifier is equal to the diode voltage drop. The model and sense amplifiers are practically identical in design and are produced on the same monolithic chip so that the comparison by the differential circuit indicates whether or not the signal on the sense line exceeds the reference potential.

3,573,497 BIASING CIRCUIT

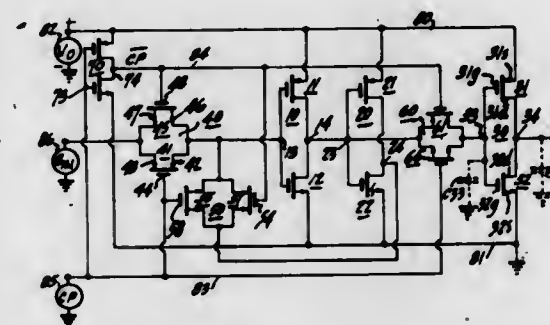
Albert V. Kraybill, Riverside, Ill., assignor to Motorola, Inc., Franklin Park, Ill.
Filed Oct. 9, 1969, Ser. No. 866,130
Int. Cl. H03k 5/08; H04b 1/16 10 Claims
U.S. Cl. 307-237



Limiting amplifier adapted to be constructed in integrated circuit form and including plurality of direct current coupled transistor stages with input and output circuits interconnected therewith. The amplifier has sufficient gain to limit on noise so that a rectangular wave output signal is developed at the output circuit. An integrating network responsive to the output signal provides a bias voltage which is coupled to the input circuit to control the bias applied to the semiconductor devices so that the duty cycle of the rectangular wave output signal is regulated to be preferably a 50 percent duty cycle.

3,573,498 COUNTER OR SHIFT REGISTER STAGE HAVING BOTH STATIC AND DYNAMIC STORAGE CIRCUITS

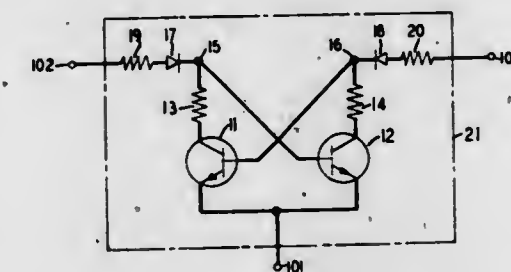
Richard W. Ahrons, Somerville, N.J., assignor to RCA Corporation
Filed Nov. 24, 1967, Ser. No. 685,376
Int. Cl. G11c 11/34 7 Claims
U.S. Cl. 307-238



Signal translating stages which are useful in shift register applications are described. The signal translating stage is shown, in one example, to be constructed of complementary IGFET devices and, in another example, of single conductivity type IGFET devices. In either example, the shift register stage includes a flip-flop storage circuit and an inverter input capacitance node storage circuit which are operatively coupled and decoupled under the control of clock signals to translate information from the input to the output of the stage.

3,573,499 BIPOLAR MEMORY USING STORED CHARGE

Dennis J. Lynes, Madison, N.J., assignor to Bell Telephone Laboratories, Incorporated, Murray Hill, Berkeley Heights, N.J.
Filed May 2, 1969, Ser. No. 821,408
Int. Cl. G11c 11/40 7 Claims
U.S. Cl. 307-238



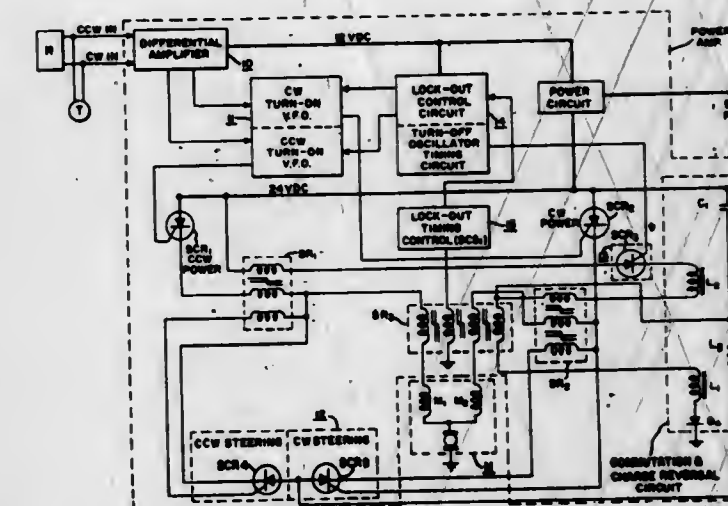
A semiconductor memory characterized by simplified memory cells which operate on the charge storage phenomenon. Each cell comprises a pair of cross-coupled transistors, the collector electrodes of which are connected through separate diodes to a pair of information lines. Power is supplied in pulsed fashion via the information lines. No conventional load impedances are used. The coupling diodes prevent discharge of stored information during intervals in which no power is being supplied. The memory advantageously is embodied as a semiconductor integrated circuit.

3,573,500 POWER AMPLIFIER CONTROL SYSTEM

Charles E. Leonard, South Burlington, Vt., assignor to General Electric Company
Original application Apr. 26, 1967, Ser. No. 633,872. Divided and this application Jan. 24, 1969, Ser. No. 807,155
Int. Cl. H03k 17/00 3 Claims
U.S. Cl. 307-252

A bidirectional motor control system and apparatus comprising a power amplifier utilizing a first pair of solid state controlled rectifiers for selective pulse frequency modulated motor operation in CCW or CW rotational direction, commutating circuit means for interruption of power from said first pair of controlled rectifiers, including a

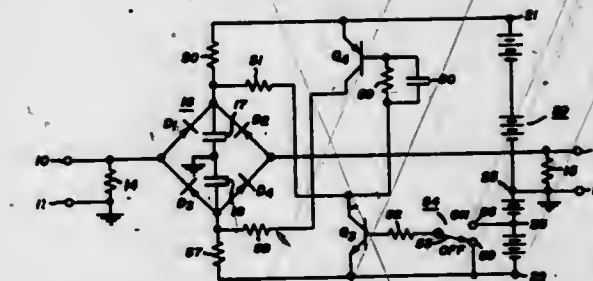
capacitor and at least one inductance, a second pair of solid state controlled rectifiers, signal supplying control means for selective and timed capacitor charge reversal, controlled



rectifier triggering, steering of the commutating circuit output to the appropriate one of the first pair of controlled rectifiers, and lockout of the respective triggering signals.

3,573,501 SOLID STATE SWITCHING CIRCUITS

Max H. Diehl, Manlius, N.Y., assignor to General Electric Company
Filed Apr. 22, 1968, Ser. No. 723,024
Int. Cl. H03b 17/00 6 Claims
U.S. Cl. 307-257



A solid state switching circuit including a diode bridge network is operated by DC control currents. One pair of opposite points of the bridge network is connected in the line to be switched. The other pair of opposite points of the bridge network is connected to a control circuit which produces conduction or nonconduction simultaneously in the diodes. Unidirectional currents from the control circuit, flowing in the bridge circuit, flow in opposite directions in both the input and output circuit of the line to be switched and are balanced out.

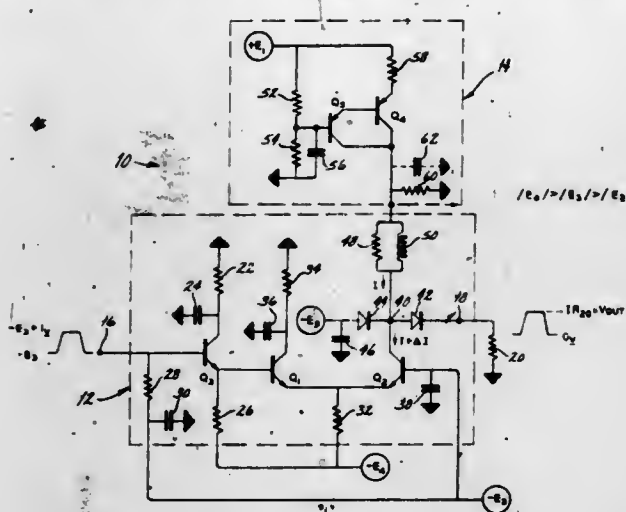
3,573,502 SUBNANOSECOND CURRENT PULSE GENERATOR

David T. Kan, Albany, Calif., assignor to Monsanto Company, St. Louis, Mo.
Filed Dec. 24, 1968, Ser. No. 786,557
Int. Cl. H03k 5/12 7 Claims
U.S. Cl. 307-263

A pulse generator circuit including a pair of switching transistors and a constant current source coupled to an output terminal by a diode poled to deliver current to the load resistor in response to the switching of the transistor. While the pulse generating circuit is in its standby condition and during a predetermined portion of the switching cycle,

the diode isolates the load circuit from the switching circuit. Actuation of the switching transistor and subsequent

made either to have a linear dependence upon changes of temperature or, by the simple addition of a resistor, may be made substantially independent of temperature variations. Since the current source consists only of transistors of one conductivity type and resistors, it is ideally suited for



conduction of the diode produces a pulse waveform having the steep leading and trailing edges at the output terminal.

3,573,503 PULSE GENERATING CIRCUIT

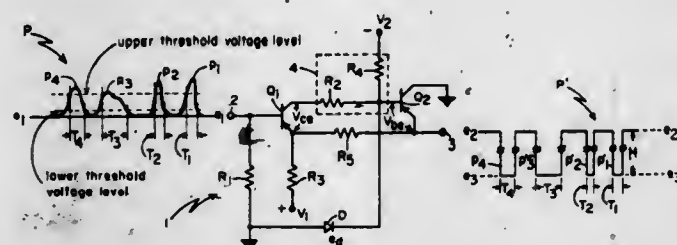
Frank G. Macey, Shrewsbury, Mass., assignor to Sylvania Electric Products Inc.

Filed Jan. 31, 1969, Ser. No. 795,548

Int. Cl. H03k 3/295

U.S. Cl. 307-264

6 Claims



A regenerative pulse-generating circuit having hysteresis for producing a train of constant amplitude, varying width output pulses having fast rise and fall times from a train of low level, varying amplitude analog input pulses. Each analog input pulse is applied to an input switching transistor which, during the quiescent mode of operation of the pulse generating circuit, is biased in its saturation region. When the voltage level of the input pulse reaches an upper threshold voltage level of the pulse-generating circuit, the input switching transistor starts to rapidly turn off and causes the voltage at the base of an emitter-follower output transistor coupled thereto to rapidly change. When this voltage reaches a predetermined value, it is clamped to that value by means of a diode. The emitter-follower output transistor, which is biased in a low conduction state during the quiescent mode of operation of the pulse-generating circuit, is operated in a high conduction state and the voltage level at the emitter thereof changes from its quiescent value.

When the voltage level of the input pulse reaches a lower threshold voltage level of the pulse-generating circuit, the input switching transistor and the output transistor are switched to their quiescent operating states whereby the voltage level at the emitter of the output transistor returns to its original value. Because of the presence of regeneration between the transistors, the transistors are switched from one state to another in a very rapid fashion.

3,573,504

TEMPERATURE COMPENSATED CURRENT SOURCE

David Roy Breuer, Malibu, Calif., assignor to TRW Inc., One Space Park, Redondo Beach, Calif.

Filed Jan. 16, 1968, Ser. No. 698,238

Int. Cl. G05f 1/40

U.S. Cl. 307-270

3 Claims

A current source which is substantially independent of variations of temperature. Thus the current source may be

manufacture in the form of a monolithic integrated circuit. The invention described herein was made in the performance of work under a NASA contract and is subject to the provisions of Section 305 of the National Aeronautics and Space Act of 1958, Public Law 85-568.

3,573,505 BISTABLE CIRCUIT AND MEMORY CELL

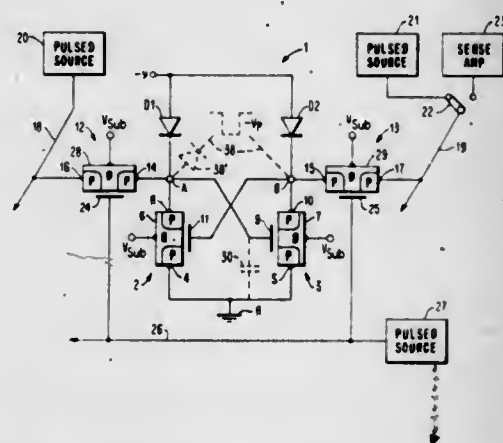
Fritz H. Gaensslen, Yorktown Heights, and Dominic P. Spampinato, Ozone Park, N.Y., assignors to International Business Machines Corporation, Armonk, N.Y.

Filed July 15, 1968, Ser. No. 744,903

Int. Cl. H03k 3/26

U.S. Cl. 307-279

16 Claims



A memory cell in which the load devices thereof are unidirectional devices such as diodes. In the cell, where the storage devices are PNP or NPN devices, the diode load devices are disposed in the circuit such that the PN junctions of the diodes are backward biased. The storage devices, which are cross-coupled, and the diode load devices are connected at nodes to which gated drivers are also connected for the purpose of applying appropriate voltages to the nodes and, therefore, to the gate electrodes of the storage devices to change the conducting state of the storage devices during an active state. The gated drivers when turned on; also provide a portion of a current path to detect the conducting state of one or the other of the storage devices. In a quiescent state, the diode load devices in conjunction with a backward-biased PN junction portion of the OFF storage device form a nonlinear voltage divider which, because of their relative impedances, apply a voltage at the node of the OFF storage device to which the gate of the ON storage device is connected which maintains that storage device in the ON condition during the quiescent state. A bistable circuit and a nondestructive readout memory array are also disclosed.

3,573,506 TEMPERATURE STABILIZED MONOSTABLE MULTIVIBRATOR

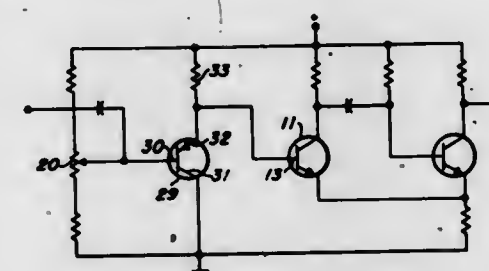
Francis E. Morris, 3436 Elliott St., San Diego, Calif.

Filed May 8, 1968, Ser. No. 727,448

Int. Cl. H03k 3/26

U.S. Cl. 307-273

5 Claims



A modification to a conventional monostable multivibrator circuit is disclosed for minimizing variations in the width of output pulses produced by the circuit, in particular, pulse width variations resulting from changes in parameters of the transistors resulting from temperature variations. Stabilization is achieved by utilizing an additional transistor as a leg of a voltage divider for supplying bias voltage to the transistors of the multivibrator. When the additional transistor has a temperature response similar to that of the multivibrator transistor, a circuit can be constructed that compensates for changes in parameters of the multivibrator transistors by changing their bias voltage. Two embodiments of the instant invention are disclosed. One utilizes a third transistor that is identical in type to the transistor of the multivibrator while the other uses a transistor of complementary symmetry.

3,573,507

INTEGRATED MOS TRANSISTOR FLIP-FLOP CIRCUIT

Hung L. D. Eng, Ottawa, Ontario, Canada, assignor to Northern Electric Company Limited, Montreal, Quebec, Canada

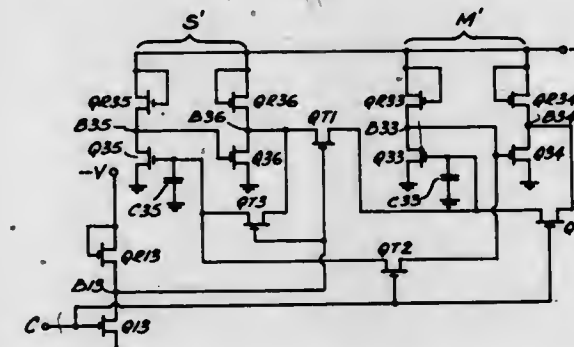
Filed Nov. 8, 1968, Ser. No. 774,241

Claims priority, application Canada, Sept. 11, 1968, 029,748

Int. Cl. H03k 3/286

U.S. Cl. 307-279

5 Claims



A circuit capable of J-K operation and composed of enhancement-type MOS transistors adapted for integrated circuits. The total gate area required for the transistors is reduced by minimization of series connection of two or more of the inverter transistors, which are required to have a low resistance compared with the transistors that perform a load resistor function.

This avoidance of series connection is achieved by connecting one of the cross-connected feedback paths of each flip-flop assembly through a transmission transistor gated by the clock pulses.

3,573,508

THYRISTOR SWITCH CIRCUIT

William B. Harris, Bernardsville, N.J., assignor to Bell Telephone Laboratories, Incorporated, Murray Hill, Berkeley Heights, N.J.

Filed Sept. 27, 1968, Ser. No. 763,262

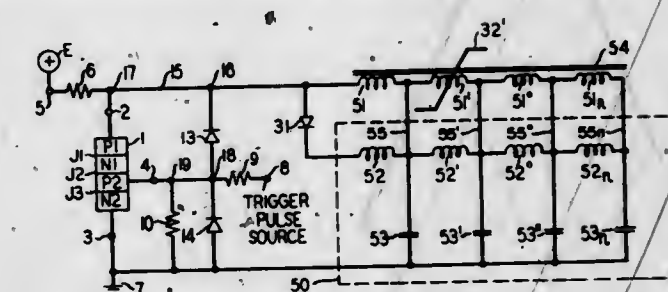
Int. Cl. H03k 3/35, 35, 17/56

U.S. Cl. 307-284

5 Claims

Heretofore, when a thyristor switch circuit has employed a resonant circuit, including a series-connected inductor and

capacitor, for producing a cycle of ringing current which is used for turning off the thyristor, the minimum pulse width that could be obtained was usually greater than twice the recovery time of the thyristor. It has now been discovered that an approximately 50 percent reduction in this minimum pulse width can be effected by connecting a diode in series with the inductor-capacitor combination and by placing a saturable reactor in shunt across the serially connected diode



and inductor. The diode is so poled as to prevent the initial discharge current produced by the capacitor from flowing through the inductor and forces this current to flow through the saturable reactor. Since the saturable reactor is biased to present a low inductive impedance to the first half-cycle of ringing current, it reduces the duration of this first half-cycle to a very short period of time. This provides a substantially greater ratio of turnoff time to pulse width and thereby produces a much narrower pulse for a given turnoff time.

3,573,509

DEVICE FOR REDUCING BIPOLAR EFFECTS IN MOS INTEGRATED CIRCUITS

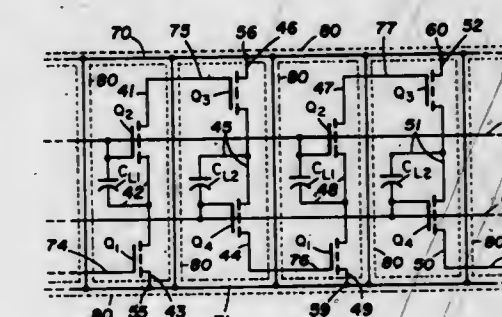
Robert Hudson Crawford, Richardson, Tex., assignor to Texas Instruments Incorporated, Dallas, Tex.

Filed Sept. 9, 1968, Ser. No. 758,283

Int. Cl. H01l 19/00

U.S. Cl. 307-303

6 Claims



A capacitive pullup, two-phase shift register formed by P-channel enhancement mode MOS transistors is disclosed as the embodiment of the invention. As a result of the capacitive coupling, a P-type diffusion which is normally negative will go positive in some instances. This forward biases the normally reverse biased PN junction between the P-type diffusion and the N-type substrate, injecting carriers into the substrate which may be collected at any other negatively biased P-type diffusion which then functions as the collector of a bipolar transistor. This collector current may result in the loss of stored logic information. To minimize these effects, a P-type collector diffusion is disposed adjacent to each potential emitting diffusion to collect the spurious carriers injected into the substrate before they cause the loss of stored data.

3,573,510

CUSHION THRUST WASHER

Charles W. Otto, DeKalb, Ill., assignor to General Electric Company

Filed June 9, 1969, Ser. No. 831,592

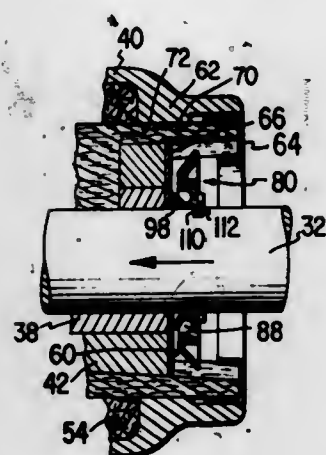
Int. Cl. F16c 1/24

U.S. Cl. 308-132

14 Claims

A unitary, imperforate disclike thrust washer member carried by a dynamo electric machine rotor shaft is annularly recessed on one face with one recess wall slotted at spaced

circumferential positions to form a plurality of flexible spring fingers which extend axially beyond a rigid thrust runner, and mechanism is suitable for application in high vacuum electron tubes and in outer space.



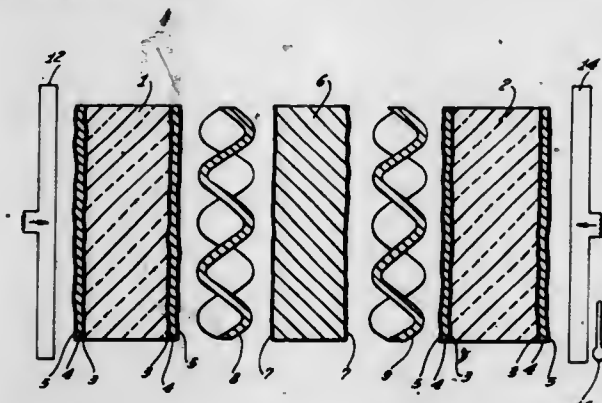
annularly recessed on the opposite face to form a cone-shaped oil pumping surface.

3,573,511

HIGH TEMPERATURE, HIGH VACUUM, DIFFUSION BONDED PIEZOELECTRIC MOTOR SANDWICH, UTILIZING INTERMEDIATE WAFFLELIKE LAYERS
Don W. Noren, Redwood City, Calif., assignor to Litton Precision Products, Inc., San Carlos, Calif.
Original application Jan. 4, 1968, Ser. No. 696,487, now Patent No. 3,481,014. Divided and this application June 5, 1969, Ser. No. 830,680
Int. Cl. H04r 17/00

U.S. Cl. 310-8

5 Claims

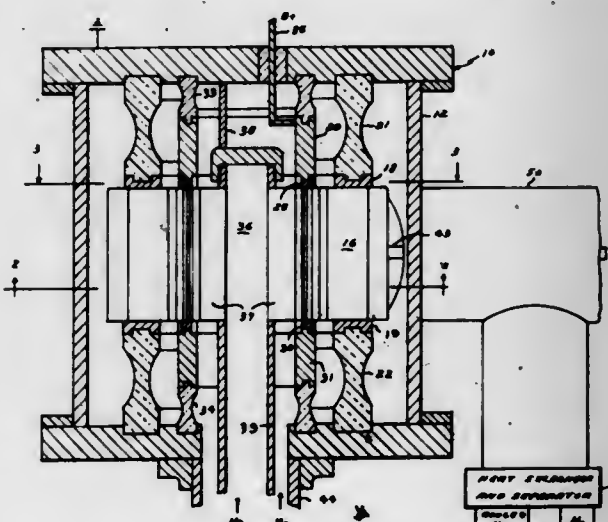


This invention presents a construction for piezoelectric-motor devices commonly termed "bimorphs" and obtains an improved bimorph that is suitable for operation at high temperatures and in high vacuum environments. The bimorph is constructed of two thin flat piezoelectric layers, each of which is plated on the front and back faces with an electrically conductive material by conventional techniques, such as ion plating. This plating preferably consists of successive layers of chrome, copper, and gold. One face of each element functions as an outer electrode. The middle electrode of the bimorph is a thin flat metal which has physical characteristics which match those of the piezoelectric bodies, suitably molybdenum. The molybdenum sheet is copper plated on both sides. This electrode is sandwiched between the two piezoelectric layers. However, sandwiched between each of the piezoelectric layers and the plated middle electrode is a thin layer of electrically conductive material, suitably gold, having a wafflelike or indented lattice surface configuration. These elements are sandwiched together as indicated and are diffusion bonded together to form a unitary mass. One representative application is the use of the bimorph as a driving mechanism in tuners located within the evacuated regions of microwave tubes, such as the coaxial magnetron. Additionally, because the construction retains its operational characteristics in high vacuum environments without outgassing, the motor

3,573,512
ELECTROFLUID DYNAMIC GENERATOR SYSTEM
Maurice O. Lawson; Hans J. P. von Ohain, Dayton; John A. Decaire, Fairborn, Ohio, and Frank L. Wattendorf, Washington, D.C., assignors to the United States of America as represented by the Secretary of the Air Force
Filed Mar. 3, 1970, Ser. No. 16,102
Int. Cl. H02m 3/00

U.S. Cl. 310-10

6 Claims

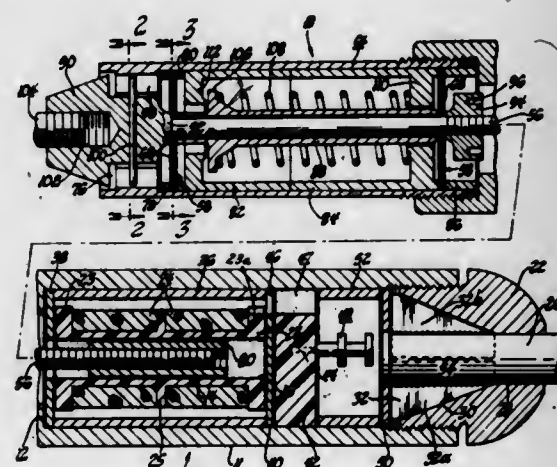


In an electrofluid dynamic generator system a plurality of annularly positioned nozzles directing high velocity flow of charged particles toward a collector structure wherein the charges are moved against the electrostatic field by fluid dynamic energy. Vortex chambers are located on each side of the flow with low molecular weight gas forming aerodynamic walls for the conversion section. Electrodes are positioned in the vortex flow to provide a linear increase in voltage along the centerline of the conversion section. The electrodes are shaped so they do not interfere substantially with the vortex flow in the vortex chambers.

3,573,513
ELECTROMECHANICAL TRANSDUCER
Thomas D. Hayosh, Bloomfield Hills, and Keith R. Jenkin, Sterling Heights, Mich., assignors to Speedring Corporation, Warren, Mich.
Filed Aug. 14, 1968, Ser. No. 752,685
Int. Cl. H02k 35/02

U.S. Cl. 310-14

15 Claims



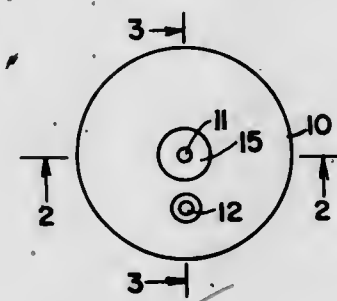
An electromechanical transducer including a coil supporting assembly and an armature supporting assembly detachably connected together. The coil supporting assembly includes a cylindrical casing with an internal shoulder, and a

coil winding support member is clamped against the shoulder by an adjustable cap. The armature is mounted on a rod supported on a pair of diaphragm springs for relatively free axial movement but is restrained against radial and rotative movement.

3,573,514
RECIPROCATING MOTOR WITH EXCURSION MULTIPLICATION
Richard T. Race, Chicago, Ill., assignor to Motorola, Inc., Franklin Park, Ill.
Filed May 12, 1969, Ser. No. 823,918
Int. Cl. H02k 33/04

U.S. Cl. 310-17

18 Claims

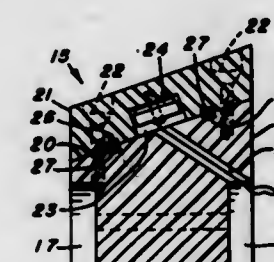


A reciprocating motor for a refrigerator compressor operates in response to alternating current signals applied either to an electromagnet or to a bilayer piezoelectric crystal mounted within the motor housing. The armature of the electromagnet and a plate driven by the bilayer crystal are arranged for limited excursions in an amount which normally would be insufficient to provide sufficient output to the piston of a compressor. The armature or the plate, however, are connected to a compressor piston through a power drive spring which is caused to have a resonant frequency of vibration equal to the frequency at which the armature or the crystal is driven. The drive spring then amplifies the movement of the armature or plate to cause the piston driven thereby to have a substantially greater excursion of reciprocation than the driving armature or crystal, thereby providing sufficient physical piston displacement to operate the compressor.

3,573,515
TRANSDUCER-HOLDING BLOCK ADAPTED TO BE MOUNTED WITHIN A LIQUID-FILLED WORK-ENGAGING ROLLER
Darwin D. Stombaugh, Hammond, Ind., assignor to United States Steel Corporation
Filed Feb. 28, 1969, Ser. No. 803,267
Int. Cl. H01v 7/00

U.S. Cl. 310-8.3

2 Claims

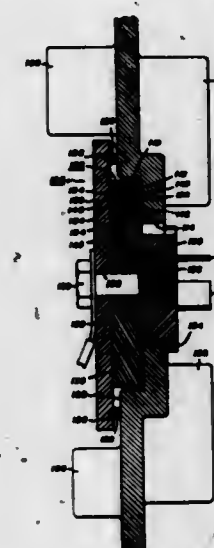


A block for holding an ultrasonic transducer (piezoelectric crystal), adapted to be mounted interiorly of a hollow liquid-filled work-engaging roller, is carried on the roller shaft and has a cap removably secured thereto. The cap has a recess in its block-engaging face, dimensioned to accommodate the transducer. A seal between the engaging faces of the block and cap prevents the liquid with which the roller is filled from coming into contact with the transducer.

3,573,516
RECTIFIER BRIDGE FOR USE WITH AN ALTERNATOR
Russell P. Lyon, East Lake, N.Y., and Paul W. Koenig, Clyde, N.Y., assignors to General Electric Company
Filed Apr. 23, 1969, Ser. No. 818,681
Int. Cl. H02k 11/00

U.S. Cl. 310-68

7 Claims

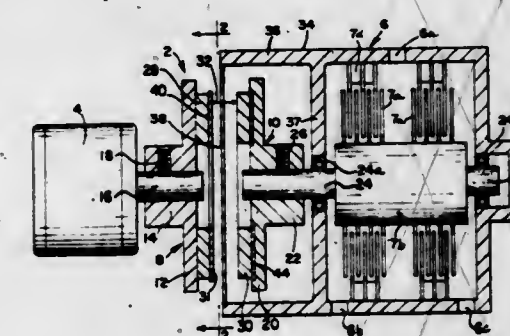


A rectifier bridge assembly is mounted against a heat-receiving surface which may be a housing of an alternator. The bridge assembly includes a plurality of stacks each including an input lead located between junction containing semiconductor elements. A plate overlies the stacks in electrically conductive relation thereto to form a conduction path for rectified current. A dielectric surrounds the semiconductor elements to protect them against contamination.

3,573,517
MAGNETIC DRIVE
Gordon E. Osterstrom, Winnetka, Ill., assignor to Sargent-Welch Scientific Company, Skokie, Ill.
Filed Mar. 2, 1970, Ser. No. 15,733
Int. Cl. H02k 49/06

U.S. Cl. 310-103

15 Claims



A synchronous magnetic drive for transmission of rotary motion from a driving member to a driven member positioned in spaced-away relation to the driving member, which synchronous magnetic drive is characterized by improved stability, particularly during acceleration. An electrically conductive member is associated with at least one flux path of at least one magnetic circuit in the synchronous magnetic drive. The electrically conductive member is positioned relative to the flux path of the magnetic circuit in a manner wherein a change in flux in that flux path, caused by relative movement between oppositely facing magnetic poles of the driven and driving members, induces a current in the electrically conductive member which, in turn, induces countermagnetic forces to those associated with the change in flux. These countermagnetic forces act as a damper which stabilizes the driven and driving members of the synchronous magnetic drive.

3,573,518

DRIVE MECHANISM

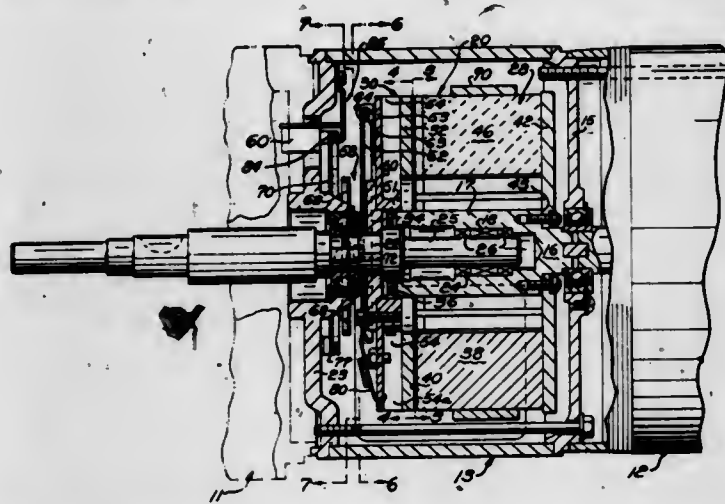
George N. Liles, Southfield, Mich., assignor to Eaton Yale & Towne Inc., Cleveland, Ohio

Filed July 28, 1969, Ser. No. 845,292

Int. Cl. H02k 49/06

U.S. Cl. 310-103

17 Claims



Hoist mechanism including a torque-limiting drive for raising the hoist and an overrunning clutch for directly driving the hoist to lower it. Torque limiting is by a hysteresis clutch having temperature-sensing means for sensing heat caused by clutch slipping.

3,573,519

ROTORS FOR ALTERNATORS

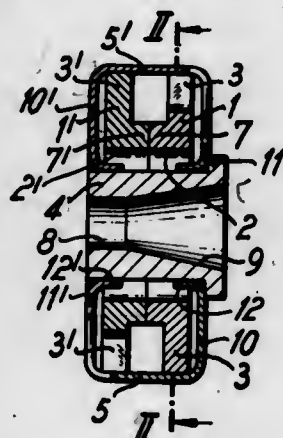
Yoshimi Kumazawa, Aichi ken, Nagoya shi, Japan, assignor to Nippon Denso, Kabushiki, Kaisha, Aichi ken, Kariya shi, Japan

Filed Apr. 3, 1969, Ser. No. 813,027

Int. Cl. H02k 21/12

U.S. Cl. 310-156

8 Claims



The rotor of a dynamo for use in motorcycles or the like comprises two annular permanent magnets each having six equidistant radially outwardly extending pole pieces each of which is overlapped by a metallic pole shoe. The pole pieces of one of the magnets alternate with the pole pieces of the other magnet, and the two magnets are separated from each other by one or more ring-shaped distancing members. The magnets, their pole pieces, the pole shoes, the distancing members and the connectors for the pole shoes are embedded in a nonmagnetizable light metal so that the rotor resembles a short cylinder having an axial passage for reception of a drive shaft.

3,573,520

ROTATING BODY HAVING COMBINED POWER GENERATING AND SIGNAL COUPLING SYSTEM

Richard C. Dorshimer, Longmeadow, Mass., assignor to United Aircraft Corporation, East Hartford, Conn.

Original application Jan. 10, 1967, Ser. No. 608,377. Divided and this application Sept. 19, 1969, Ser. No. 870,769

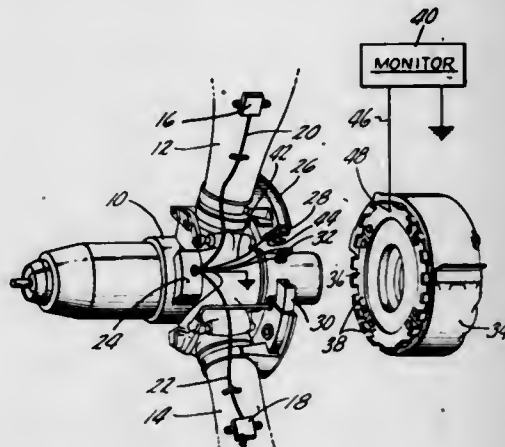
Int. Cl. H02k 19/20

U.S. Cl. 310-168

3 Claims

A rotatable member is disposed for rotation in proximity with a stationary body, the rotatable member having an

annular capacitive plate adapted for rotation immediately adjacent a plurality of magnetic teeth on the stationary body; the teeth and the annular plate forming a capacitor for coupling signals between the stationary body and rotatable member. At one point in the annular member is a magnetic head having a winding, the magnetic head passing over successive ones of the magnetic teeth generating electric current which is utilized on the rotating body to operate a



transducer circuit, the output signal of which is coupled back through the capacitive coupling formed by the teeth in the annular surface to monitoring equipment located on the stationary body. The transducer circuit may include a power rectifier and voltage regulator which operates strain gauges, amplifiers and voltage control oscillators, the outputs of the voltage control oscillators may be multiplexed in the mixer prior to returning as a signal through the capacitive coupling.

3,573,521

CONDUCTOR BLADE FOR A LIQUID METAL COLLECTOR

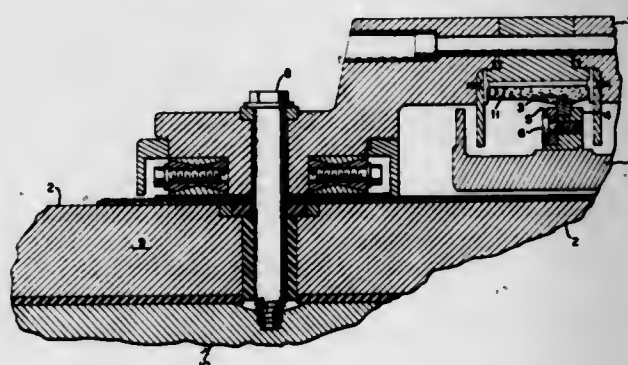
Chester C. Carson, Ballston Spa, and Gerd E. Krulls, Scotia, N.Y., assignors to General Electric Company

Filed Mar. 5, 1970, Ser. No. 16,648

Int. Cl. H02k 29/00

U.S. Cl. 310-219

4 Claims



A liquid metal collector of the type having a stationary conductor blade immersed in a rotating volume of liquid metal has improved electrical characteristics through the incorporation of a circumferential groove which is positioned in the conductor blade so as to provide a relatively quiescent area of liquid metal. An annular pad of molybdenum may be positioned in the groove in order to further enhance the electrical characteristics of the liquid metal collector.

3,573,522

DYNAMOELECTRIC MACHINE INCLUDING BRUSH HOLDING MEANS

Alex M. Pentland, Ann Arbor, Mich., assignor to Ford Motor Company, Dearborn, Mich.

Filed Dec. 29, 1969, Ser. No. 888,278

Int. Cl. H01r 39/38

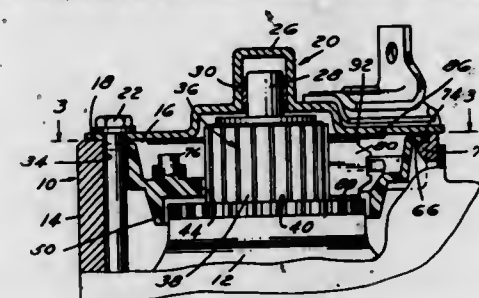
U.S. Cl. 310-239

10 Claims

This disclosure relates to a dynamoelectric machine having brush holding means which comprises essentially a single-

piece brush holder constructed of an insulating material for slidably receiving brushes that engage a cylindrical portion of a commutator. This brush holder is positioned within the machine by engagement with the stator in such a position that slots positioned therein are located radially outwardly of the cylindrical portion of the commutator. The brushes of the machine are received within these slots so that the brush

within such neck, in which a steel plate covers the open end of a grid which housed the aforementioned cathodes. The grid also has formed therein separators to eliminate the effects of intercathode electric field reaction which may result from dissimilar potentials of the cathodes.



holder does not limit movement of the brushes in an axial direction with respect to the cylindrical portion of the commutator. Axial movement of the brushes is limited by having one surface of each brush positioned closely adjacent to or in engagement with the riser of the commutator and by having another surface of each brush positioned in close proximity to or in engagement with an insulating washer.

3,573,523

VACUUM GAUGE ARRANGEMENT PROVIDED WITH A FLANGE CONNECTION

Gunther Reich, Cologne-Zollstock; Hans-Georg Noller, Walberberg, and Wolfriedrich Schulz, Cologne-Bayental, Germany, assignors to Leybold-Heraeus-Verwaltung G.m.b.H., Cologne-Bayental, Germany

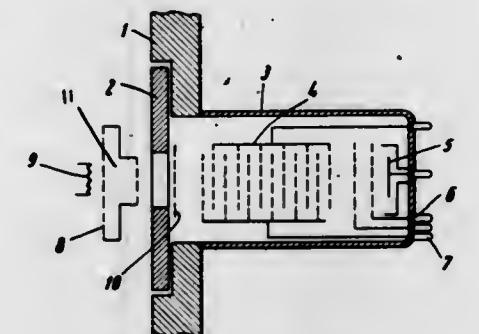
Filed Aug. 28, 1968, Ser. No. 755,925

Claims priority, application Germany, Sept. 7, 1967, L57,383

Int. Cl. G01n 27/62; H01j 41/00

U.S. Cl. 313-7

12 Claims



A heat protective electrode positioned between a hot cathode ion source having an ionization chamber and an associated electrode system having an ion collector. The heat protective electrode is connected to a flange-like supporting member which supports the housing in which the electrode system is contained.

3,573,524

MULTI-APERTURED GRID HOUSING AND SHIELDING PLURALITY OF CATHODES

Akio Ohgoshi, Tokyo, and Senri Miyaoaka, Kanagawa-ken, Japan, assignors to Sony Corporation, Tokyo, Japan

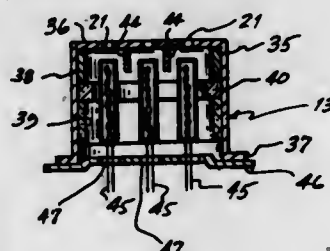
Filed Apr. 14, 1969, Ser. No. 815,939

Claims priority, application Japan, Apr. 13, 1968, 43/24,505

Int. Cl. H01j 29/50, 29/82

U.S. Cl. 313-70C

1 Claim



A shielding mechanism for isolating the positively charged neck of a color cathode ray tube from a plurality of cathodes

3,573,525
COLOR PURITY TEMPERATURE COMPENSATION SYSTEM FOR A COLOR PICTURE TUBE

Yuzo Fuse, Tokyo, Japan, assignor to Sony Corporation, Tokyo, Japan

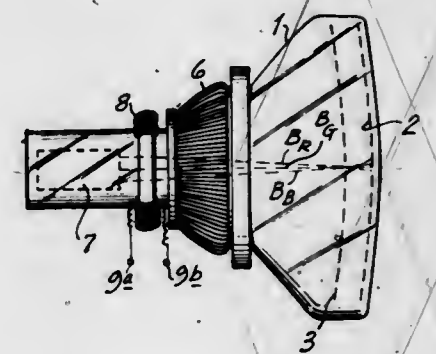
Filed Dec. 29, 1969, Ser. No. 888,340

Claims priority, application Japan, Dec. 28, 1968, 43/95984

Int. Cl. H01j 29/70

U.S. Cl. 313-75

6 Claims



In a color picture tube having an apertured beam selecting grill or mask through which one or more electron beams are made to land on predetermined color phosphors applied to the face plate of the tube, thermal expansion of the grill or mask is compensated for, so as to avoid mislanding of the beam or beams, by providing an auxiliary magnetic deflection means in back of the main magnetic deflection or scanning means and operative in dependence on the operation of the main deflection means to produce magnetic flux in opposition thereto and including a core having a magnetic permeability that decreases with increasing temperature so as to similarly decrease the magnetic flux opposing that of the main deflection means, whereby the effective center of deflection of the beam or beams is shifted rearwardly in response to increasing temperature.

3,573,526

LOCATING DEVICE FOR TEMPERATURE COMPENSATED PARALLAX BARRIER SUPPORTING SYSTEM

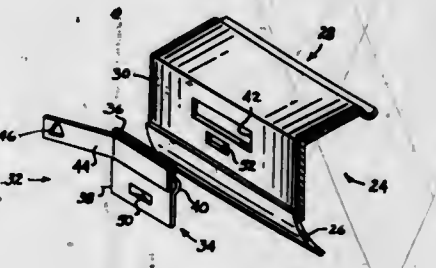
Benedict F. Vitale, Auburn, N.Y., assignor to Sylvania Electronics Products Inc.

Filed Dec. 23, 1968, Ser. No. 786,183

Int. Cl. H01j 29/02, 29/32, 29/06

U.S. Cl. 313-85

1 Claim



Cooperating means formed between a temperature-compensating member having an expansion loop and a sidewall of a parallax barrier are provided to insure centering of the loop within a preformed opening in the barrier sidewall. The cooperating means comprise protruding portions and matching receiving openings therefor, either of which may be formed on either member with the mating portion formed on the other member.

3,573,527

SHADOW MASK SUPPORTED BY BIMETALLIC SPRING COMPRISING COPLANAR STRIPS WITH DIFFERENT COEFFICIENTS OF EXPANSION

Gerardus Antonius Hafkenscheid; Gerardus Wilhelmus Plukker, and Jan Willem Ruis, Emmasingel, Eindhoven, Netherlands

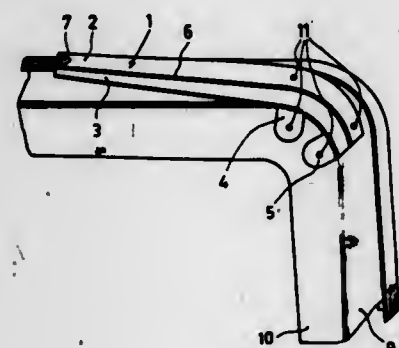
Filed Feb. 3, 1969, Ser. No. 795,969

Claims priority, application Netherlands, Feb. 8, 1968, 6801741

Int. Cl. H01J 29/02, 29/06, 19/50

U.S. Cl. 313-85

5 Claims



A color display tube in which the shadow mask is suspended by means of resilient strips which consist of strips of metals having different coefficients of expansion, the narrow sides of which are welded together, the welding seam extending along the longitudinal axis of the strip, and the strip upon heating being bent in its plane in such a manner that the mask is moved towards the display screen.

3,573,528

COLOR PICTURE TUBE GRID STRUCTURE WITH NONUNIFORM GENERALLY PARALLEL SLITS

Makoto Maeda, Kanagawa-ken, Japan, assignor to Sony Corporation, Tokyo, Japan

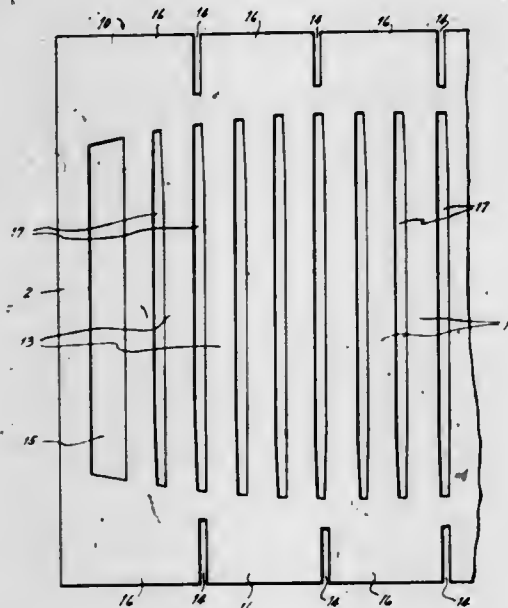
Filed Feb. 12, 1969, Ser. No. 798,635

Claims priority, application Japan, Feb. 12, 1968, 43/9043

Int. Cl. H01J 29/06, 29/46, 29/56

U.S. Cl. 313-85

1 Claim



A grid structure for color picture tubes adapted to decrease undesirable deviation of electrons away from the phosphor screen of a color picture tube. The slits between the grid wires are formed narrower at the upper and lower portions and wider in the central portion to increase the fundamental vibration frequency and increase the electron beam transmission factor. The latter grid structure eliminates the deleterious effects of (a) grid vibration caused by accidental impact and (b) earth magnetism.

3,573,529

FACEPLATE OF THIN-WINDOW RECORDING TUBE HAVING INTERMEDIATE SHEET OF SMALLER REFRACTIVE INDEX THAN THE FACE PLATE

Kaoru Tomii, Tokyo, Japan, assignor to Matsushita Electric Industrial Co. Ltd., Osaka, Japan

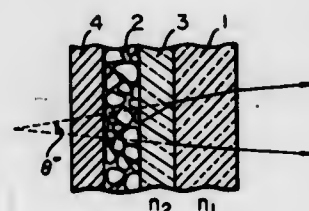
Filed June 16, 1969, Ser. No. 833,254

Claims priority, application Japan, Oct. 2, 1968, 43/72345

Int. Cl. H01J 29/18, 5/16

U.S. Cl. 313-92

3 Claims



An improved faceplate of a thin-window recording tube having an additional glass sheet interposed between the outermost glass sheet and fluorescent layer. The faceplate offers increased resolution due to minimized diffusion of the output luminescent light with the refractive index of the intermediate glass sheet smaller than that of the outermost glass sheet.

3,573,530

ELECTROLUMINESCENT PANEL DISPLAY DEVICE

Tadao Kohashi, Yokohama, Japan, assignor to Matsushita Electric Industrial Company, Ltd., Osaka, Japan

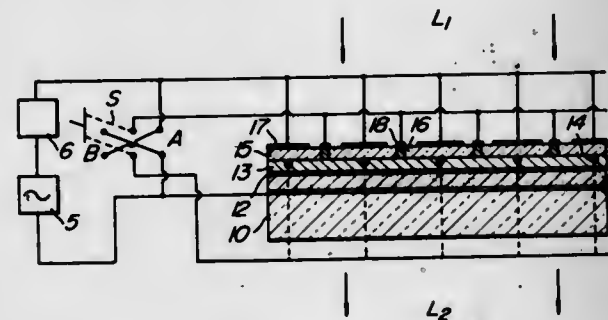
Filed May 13, 1968, Ser. No. 728,546

Claims priority, application Japan, May 19, 1967, 42/32249

Int. Cl. H01J 1/66, 1/70; H05J 33/10

U.S. Cl. 313-108

2 Claims



A luminescent memory and display device which receives visible light or X-rays as an input signal, converts said signal into a variation in DC voltage with an amplifying effect, and displays the corresponding signal in an AC excited luminescent output or stores the signal if required; said device comprising an electroluminescent element, an energy-responsive element such as a photoconductive element, a resistive element, a capacitive element, an AC voltage source and a DC voltage source.

3,573,531

PLASMA PANEL DISPLAY DEVICE

Donald R. Kerstetter, Emporium, and Everett C. Smith, Butler, Pa., assignors to Sylvania Electric Products, Inc.

Filed Mar. 18, 1968, Ser. No. 808,271

Int. Cl. H01J 63/06, 11/00, 15/02

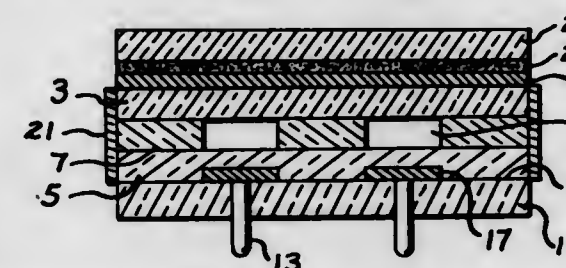
U.S. Cl. 313-108

3 Claims

A high contrast plasma display device includes transparent and opaque insulator layers spaced and bonded by a plurality of spaced opaque insulator segments forming a plurality of cavities. An insulator substrate having a plurality of spaced conductors on the surface thereof in registry with the cavities and electrical connectors embedded therein is bonded to the opaque insulator layer while a transparent electrode layer is

affixed to the transparent insulator layer. An ionizable gas is disposed within the cavities whereby energization of certain conductors alters the device from an opaque to a visual display.

Also, the high contrast plasma display device is fabricated by a process which includes affixing the spaced conductor to a substrate, bonding an opaque insulator layer to the



substrate and spaced conductors, attaching spaced opaque insulator segments to a transparent insulator layer, bonding the segments to the opaque insulator layer forming cavities in registry with the spaced conductors, affixing a transparent electrode to the transparent insulator layer, and disposing an ionizable gas within the cavities whereby the device appears opaque until energized to provide a visual display.

3,573,532

ELECTROLUMINESCENT DISPLAY DEVICE HAVING ETCHED CHARACTER ELECTRODES

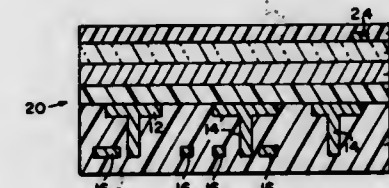
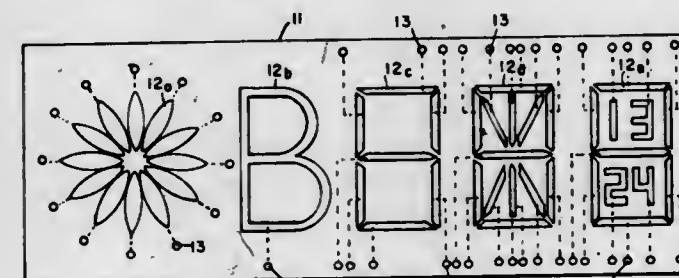
Gerald Boucher, Hudson, assignor to Sanders Associates, Inc., Nashua, N.H.

Filed May 22, 1968, Ser. No. 731,191

Int. Cl. H01J 7/42; H01K 1/60

U.S. Cl. 313-109.5

4 Claims



An electroluminescent display device is provided, in which a substrate of the display is comprised of character electrodes, external connecting means for facilitating connections to external apparatus and a plurality of interconnecting means between the character electrodes and external connecting means. The character electrodes, interconnecting means and external connecting means form one integral unit, with the display device itself being a monolithic structure.

3,573,533

GUN-SUPPORTING CYLINDER CENTERED IN ART NECK BY SPRINGS CONNECTED INTERNALLY OF CYLINDER

Bent Gronlund, Vista, Calif., assignor to Hughes Aircraft Company, Culver City, Calif.

Filed Nov. 12, 1968, Ser. No. 774,731

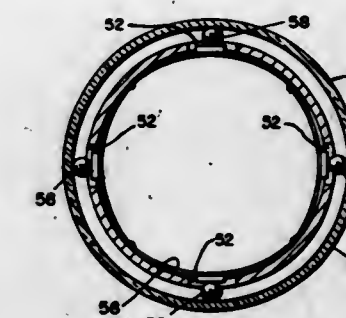
Int. Cl. H01J 1/96, 19/50, 39/02

U.S. Cl. 313-288

2 Claims

Several embodiments of a novel electron-gun-supporting arrangement are illustrated. Generically, the gun-support arrangements provide for openings in an elongated cylinder

which houses various aspects of the electron gun. Spring metal elements secured to the inner surface of the cylinder have upraised deformations to project through the holes in



this cylinder and engage the inner surface of an elongated glass tube or neck portion which houses the electron gun in conventional cathode-ray-type tubes.

3,573,534

LAMP BASE AND LEADING-IN WIRE CONNECTION

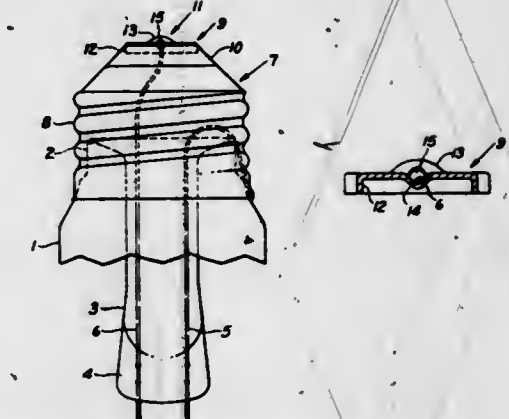
Leroy G. Leighton, Highland Heights, Ohio, assignor to General Electric Company

Filed Oct. 28, 1968, Ser. No. 770,939

Int. Cl. H01J 5/48, 5/50

U.S. Cl. 313-318

6 Claims



The contact of a conventional screw-type electric lamp base is provided with a side apertured dome-shaped boss for engaging a socket contact and a groove extending from and communicating with the side aperture for accommodation a leading-in wire threaded through the side aperture from the interior of the base and affixed to the contact within the groove.

3,573,535

HIGH-FREQUENCY ELECTRONIC TUBE HAVING NOVEL GRID MOUNTING

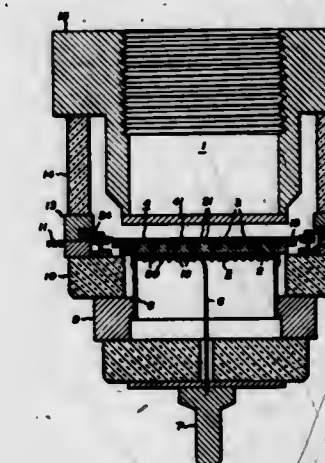
Robert M. Hughes, Owensboro, Ky., assignor to General Electric Company

Filed Nov. 12, 1968, Ser. No. 774,771

Int. Cl. H01J 13/46, 17/04

U.S. Cl. 313-348

8 Claims



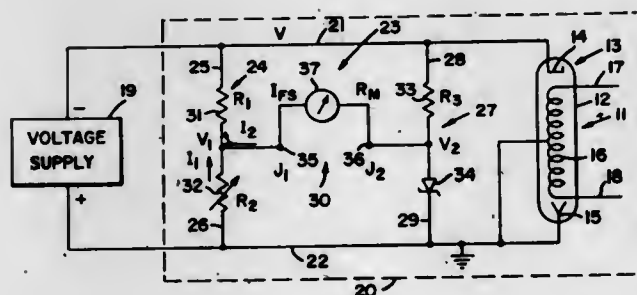
A high-frequency electron tube having a novel grid mount is provided to inhibit mechanical distortion of the grid at high

temperature. The shape and material selection of the grid support allows the grid to expand and contract at a different rate than the envelope in which it is mounted without damaging the grid.

3,573,536
ELECTRON DISCHARGE DEVICE WITH INTEGRAL VOLTAGE BRIDGE AND METHOD OF SETTING SAME
James L. Palmer, Cupertino, and Gene E. Tallmadge, Los Altos, Calif., assignors to Teledyne, Inc., Los Angeles, Calif.
Filed Feb. 3, 1969, Ser. No. 796,133
Int. Cl. H01J 25/34

U.S. Cl. 315-3.5

8 Claims

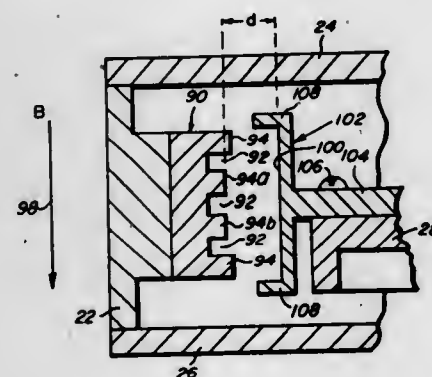


An internal voltage bridge is connected between the cathode and slow wave structure of a traveling-wave tube whereby the voltage applied between the cathode and slow wave structure can be adjusted to a predetermined value by adjustment until no reading occurs in a current measuring device connected in the bridge portion of the bridge circuit. An internal anode voltage divider is provided by connecting anode electrodes to adjustable potentiometers in one leg of the voltage bridge whereby proper setting of the cathode to slow wave structure voltage establishes the desired voltage at the respective anode electrodes.

3,573,537
COLLECTOR ELECTRODE FOR CROSSED FIELD TRAVELING WAVE DEVICE
Merle R. Boyd, Auburndale, Mass., assignor to Raytheon Company, Lexington, Mass.
Filed June 2, 1969, Ser. No. 829,387
Int. Cl. H01J 25/34

U.S. Cl. 315-3.5

10 Claims



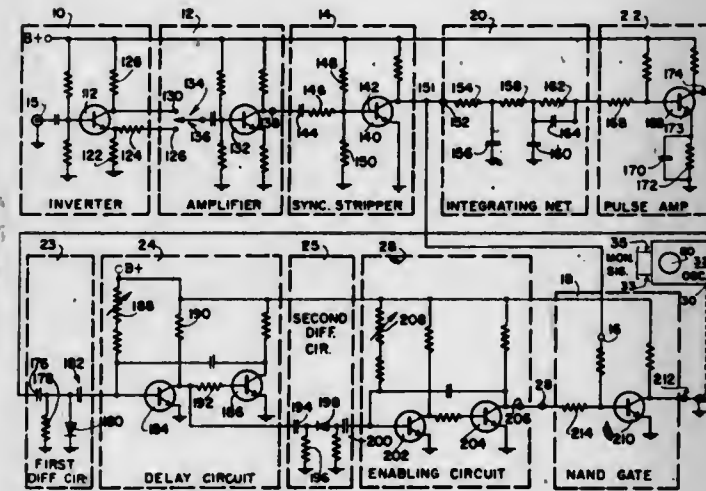
A collector electrode for the terminal region of devices having parallel substantially coextensive electrodes defining an interaction path for a beam of electrons is disclosed to provide an optimized collecting surface along a reference plane defined parallel to the direction of the magnetic field. A progressively varying collector surface with respect to the opposing coplanar electrode is provided to substantially match the variations in the magnetic field intensity thereby effectively influencing the electric field and velocity of the electrons in the collection region.

3,573,538
GATING CIRCUIT FOR SELECTING SYNCHRONIZATION PULSES TO TRIGGER AN OSCILLOSCOPE

Roger A. Swanberg, Bensenville, Ill., assignor to Motorola, Inc., Franklin Park, Ill.
Filed May 9, 1969, Ser. No. 823,409
Int. Cl. H01J 29/70

U.S. Cl. 315-18

5 Claims



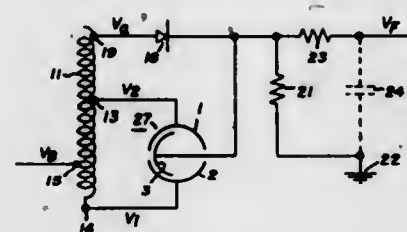
The oscilloscope triggering circuit translates a composite video television signal to derive selected synchronization pulses which are used to trigger the horizontal sweep of an oscilloscope trace so that waveforms applied to the vertical input of the oscilloscope and which occur in time relation with the selected pulses are displayed thereon.

3,573,539
ADJUSTABLE FOCUS VOLTAGE SUPPLY FOR TELEVISION RECEIVERS
John W. Lister, Syracuse, N.Y., assignor to General Electric Company

Filed Apr. 1, 1969, Ser. No. 812,252
Int. Cl. H01J 29/56

U.S. Cl. 315-31

8 Claims

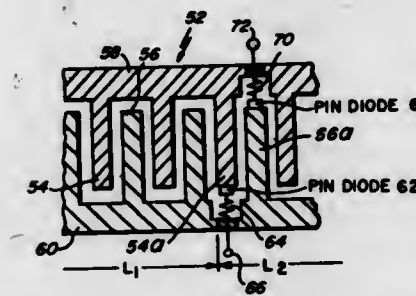


An improved adjustable focus voltage supply for television receivers comprising a variable differential capacitor having at least two fixed plates and a movable plate. The fixed plates are coupled across a portion of the primary winding of the horizontal flyback transformer of the receiver. A diode rectifier has one terminal connected to the movable plate of the differential capacitor and a remaining terminal connected to a point on the winding which, during operation, normally generates pulses of greater amplitude than the points to which the fixed plates of the differential capacitor are connected. An output terminal for deriving the desired variably controlled DC focus voltage is connected to the juncture of the diode rectifier and the movable plate of the differential capacitor. The fixed plates of the differential capacitor are connected to spaced points on the primary winding and, in the illustrated embodiment, the connections straddle the point on the winding which is maintained at alternating current ground reference potential during normal operation. Additionally, the output terminal is connected through a load resistor to a source of alternating current ground reference potential.

3,573,540
MICROWAVE TRAVELING WAVE DEVICE WITH ELECTRONICALLY SWITCHED INTERACTION CHARACTERISTICS
John M. Osepchuk, Concord, Mass., assignor to Raytheon Company, Lexington, Mass.
Filed July 1, 1969, Ser. No. 838,148
Int. Cl. H01J 25/34

U.S. Cl. 315-3.5

16 Claims



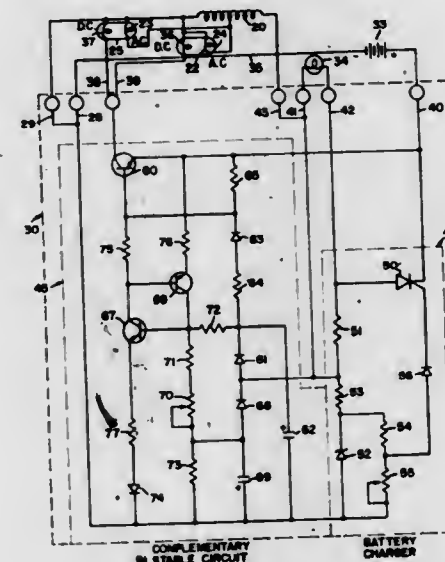
A microwave traveling wave device is disclosed with means for selecting and controlling the optimum efficient interaction characteristics between the electron beam and periodic slow wave propagating circuit, particularly in the exchange of energy with the backward wave components of the beam. The device provides in an integral embodiment for pulsed or continuous wave as well as dual mode operation with high and low operating currents. Electronically actuated means to control the electrical and propagation characteristics are incorporated in combination with the electrode structures bounding the interaction region, means for electron beam interception, as well as means for controlling the phase shift of the electromagnetic energy waves on the periodic slow wave circuit. Tunable sideband spurious signals have been measurably reduced in microwave devices employing embodiments of the invention.

3,573,541
TRANSISTOR-CONTROLLED EMERGENCY EXIT UNIT
Robert O. Dunn, El Sobrante; David C. Wilton, Los Altos; Joseph R. Dydynski, Cupertino, and Jerry D. Haney, Sunnyvale, Calif., assignors to Robert O. Dunn, El Sobrante, Calif.

Filed Apr. 21, 1969, Ser. No. 817,997
Int. Cl. H05b 39/06, 43/00

U.S. Cl. 315-87

16 Claims



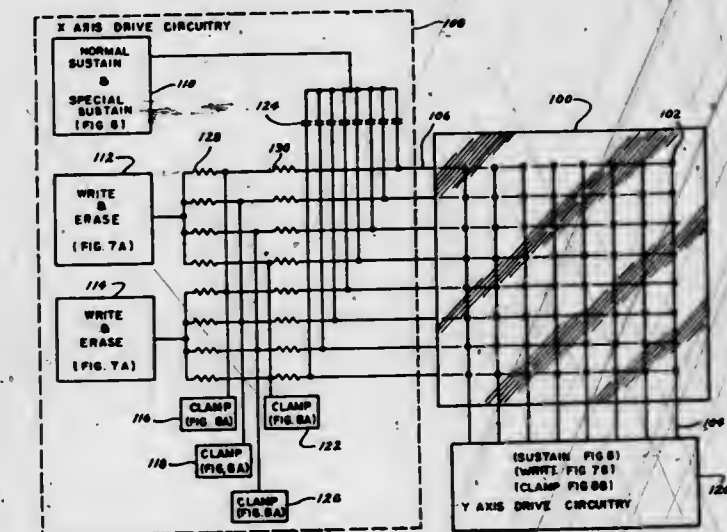
A changeover device for an emergency exit unit having lamps with AC filaments normally operated by a main power supply and normally unenergized DC filaments for operation by a standby battery, which is normally kept charged by a charger circuit. A transistor circuit, when conductive, sends power from the battery to the DC filaments, but the circuit provides for reverse-biasing the base of the transistor while the main power supply is on. An electric charge is created and stored while the main power supply is on, and upon discharge sends bias voltage to the transistor to make it

conductive. Self-holding means is energized by the same discharge through said transistor, for retaining the connection between the battery and the DC filaments, and the self-holding means is released when the voltage of the battery drops a predetermined amount below normal, thereby disconnecting the battery from said DC filaments and preventing further battery discharge.

3,573,542
GASEOUS DISPLAY CONTROL
William N. Mayer, White Bear Lake; Richard V. Bonin, Jr., St. Paul, and Robert W. Johnson, Minneapolis, Minn., assignors to Control Data Corporation, Minneapolis, Minn.
Filed Mar. 28, 1968, Ser. No. 716,877
Int. Cl. H05b 37/00

U.S. Cl. 315-169

11 Claims

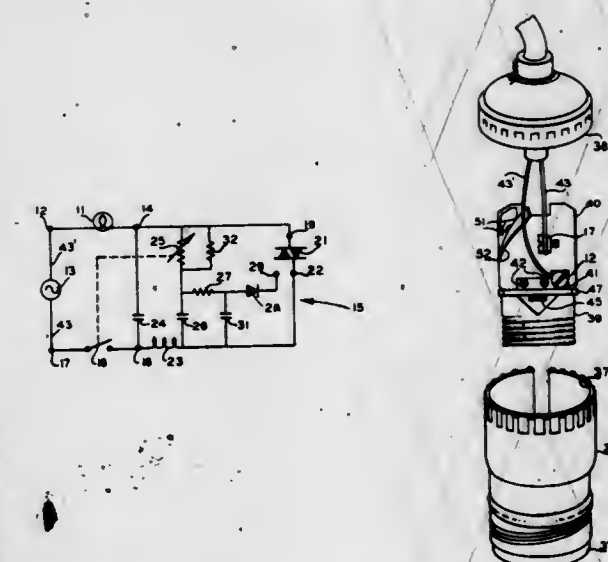


A method and apparatus for controlling the lighting of cells, the sustaining of lit cells, and the extinguishing of lit cells in a gaseous discharge display of the type where electrodes controlling the condition of the cells are insulated from the gas within each cell is disclosed.

3,573,543
VARIABLE LIGHT INTENSITY LAMP SOCKET HAVING SEMICONDUCTOR MOUNTED ON HEAT SINK THERMALLY ISOLATED FROM LAMP BASE
Melvyn B. Grindstaff, Dial-A-Lite Co., Professional Bldg., Bartlesville, Okla.
Continuation-in-part of application Ser. No. 558,784, June 20, 1966, now abandoned. This application Feb. 10, 1969, Ser. No. 797,882
Int. Cl. H05b 37/02; G05f 1/00

U.S. Cl. 315-194

8 Claims



A solid state controllable current conducting semiconductor of a variable light intensity control circuit is mounted on a heat sink member which is positioned adjacent

one end of an electrically and thermally insulating support member. The opposite end of the support member is secured to the insulating disc at the base of the lamp receiving shell of the lamp socket. The heat sink member is shaped to provide structural support and to increase the surface area thereof.

3,573,544

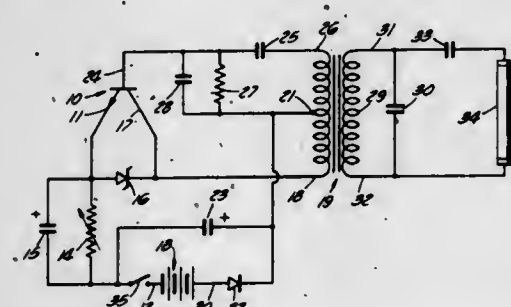
A GAS DISCHARGE LAMP CIRCUIT EMPLOYING A TRANSISTORIZED OSCILLATOR

Jerome Zonis, Ontario, and Everett R. Eu Daly, Riverside, Calif., assignors to Energy Electronics, Ontario, Calif.
Continuation of application Ser. No. 624,764, Mar. 21, 1967, now abandoned. This application May 21, 1969, Ser. No. 835,864

Int. Cl. H05b 41/232, 41/233, 41/29

U.S. Cl. 315-206

13 Claims



An oscillator circuit for starting and operating gas-filled tubes having a starting mode which provides a signal of high voltage and very high frequency followed by an operating mode after the tube ionizes whereby the voltage and frequency are considerably reduced, but current through the tube is increased. In the operating mode, the impedance of the secondary is substantially the ohmic resistance of the tube so that overall efficiency is very high.

3,573,545

CAPACITOR DISCHARGE IGNITION SYSTEM HAVING CIRCUIT MEANS FOR CONTROLLING THE SPARK ADVANCE

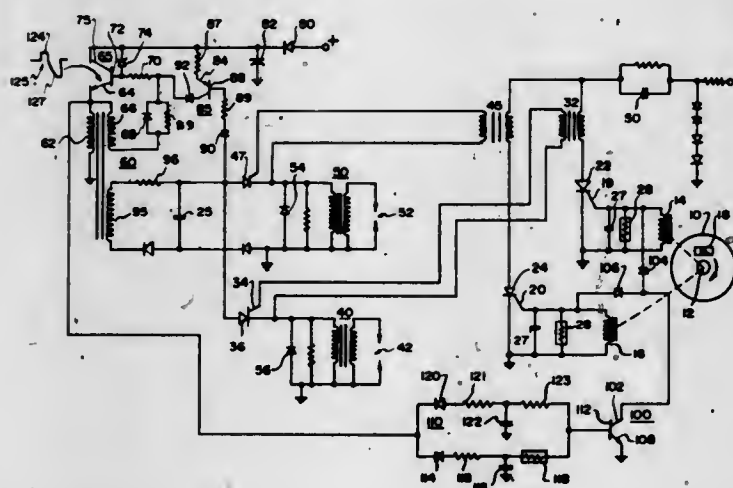
William J. Warner, Schaumburg, Ill., assignor to Motorola, Inc., Franklin Park, Ill.

Filed Aug. 22, 1969, Ser. No. 852,313

Int. Cl. F02p 5/08; H05h 41/392

U.S. Cl. 315-209CD

7 Claims



A variable reluctance generator driven in synchronism with the engine produces electrical pulses which are coupled to a detector circuit that is responsive to the pulses reaching a given level to discharge the ignition capacitor to produce an ignition pulse. The generated pulses reach the given level in a timed relation to the engine r.p.m. in order to provide spark advance for the ignition system. A transistor is connected between the detector circuit and ground for shunting a portion of the generated pulses. Upon initial operation of the engine, a bias circuit connected to the

control electrode of the transistor biases the transistor into conduction to shunt a portion of the pulses thereby reducing the sensitivity of the detector circuit so that the ignition timing remains constant during the initial operation. Subsequently, circuit biases the transistor out of conduction returning full sensitivity to the level detector for providing electronic spark advance.

3,573,546

TEMPLATE COPYING APPARATUS

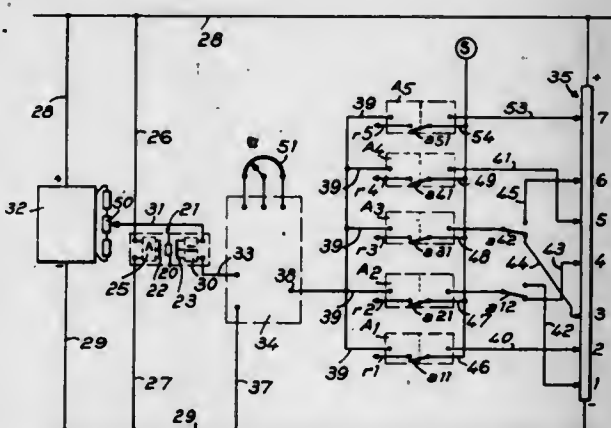
Charles S. Hemery, La Celle Saint-Cloud, France, assignor to Societe Anonyme Des Anciens Etablissements Charles Berthiez, Paris, France

Filed Aug. 15, 1967, Ser. No. 660,638

Int. Cl. G05b 19/36

U.S. Cl. 318-578

9 Claims



The invention relates to machining a workpiece, copying a template in two dimensions. The template is sensed by a copy head assembly, the assembly comprising a copy head moving with the tool, and a template follower movably mounted in the copy head. Deviation of the follower within the copy head in any direction produces a signal voltage, proportional to the magnitude of the deviation, which is compared with a series of reference voltages. The magnitude of the deviation, regardless of the direction, as determined by the voltage comparison, determines the direction of movement of the copy head and the tool.

3,573,547

METHOD OF AERODYNAMICALLY EJECTING IONS

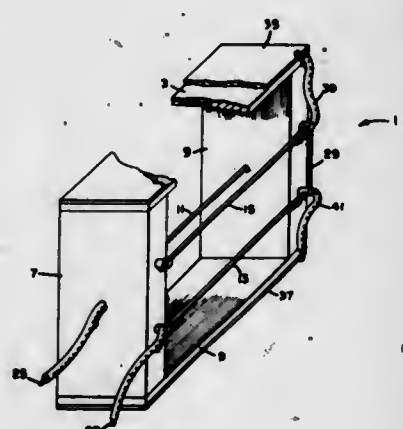
Paul B. Fredrickson, Sudbury, Mass., assignor to Augion-Unipolar Corporation, Guilford, N.Y.

Filed Jan. 27, 1969, Ser. No. 794,154

Int. Cl. H05b

U.S. Cl. 317-4

9 Claims



Discloses the method of aerodynamically ejecting and liberating on the outboard output side of an ion device a predetermined amount, optionally ranging from minimum to maximum, of the ions generated on the inboard output side of said ion device through discrete, electrode-configuration disposition and application of magnitude-fixed, DC voltage between the electrodes.

3,573,548

CURRENT ZERO ANTICIPATING DEVICE

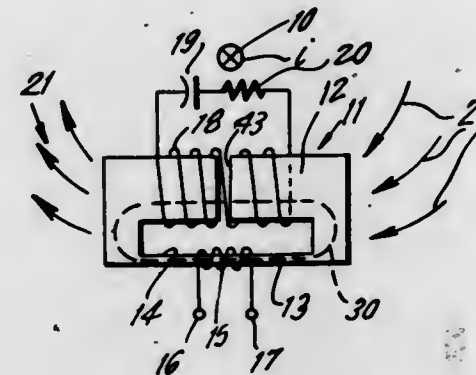
Felix H. Bachofen, Oberentfelden, Switzerland, assignor to I.T.E. Imperial Corporation, Philadelphia, Pa.

Filed Nov. 18, 1969, Ser. No. 877,774

Int. Cl. H02h 3/00

U.S. Cl. 317-11

8 Claims



A magnetic circuit consists of a large-area unsaturable section which is in closed series relation with a small-area saturable section. The circuit is located with respect to a current conductor so that the magnetic flux of the conductor flows through the large-area and small-area sections in parallel. The large-area section has an air gap and receives a winding which is closed through a resistance-capacitance circuit. The circulating flux induced in the winding is related to the rate of change of current in the adjacently positioned conductor and is phase shifted in a leading direction. An output winding on the saturable section has output pulses generated therein at times leading the current zero in the conductor by a fixed amount.

3,573,549

ELECTRICAL SYSTEM INCLUDING CAPACITORS

Herman B. Wolf, Charlotte, N.C., assignor to R. H. Bouligny, Inc., Charlotte, N.C.

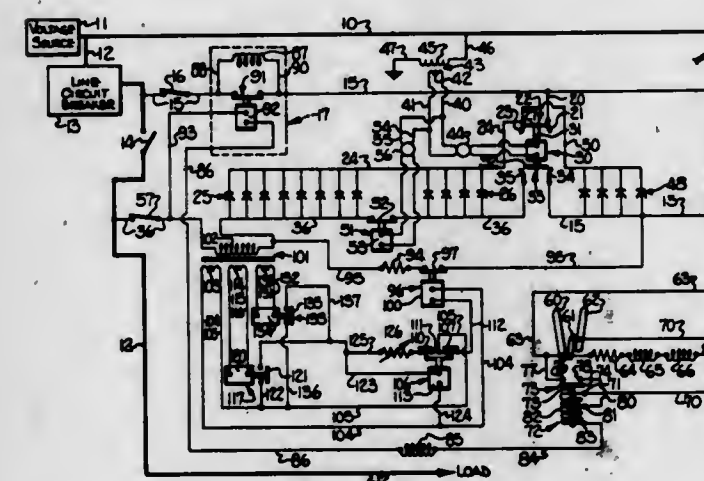
Filed May 9, 1969, Ser. No. 823,470

Continuation-in-part of Ser. No. 508,974, Nov. 22, 1965, Pat. No. 3,457,459.

Int. Cl. H02h 7/16

U.S. Cl. 317-12

3 Claims



An alternating current electrical circuit having a bank of capacitors connected therein and in which the voltage appearing on the circuit is varied by varying interconnection of capacitors and the possible appearance of resonance effects is controlled by interconnection of a resistor with the capacitors.

3,573,550

AUTOMATICALLY RESETTING TRANSIENT PROTECTION DEVICE

Louis P. Baker, Jr., Buena Park, Calif., assignor to M & T Chemicals, Inc., New York, N.Y.

Filed Mar. 7, 1969, Ser. No. 805,257

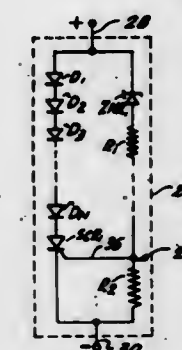
Int. Cl. H02h 3/00, 7/00, 5/00

U.S. Cl. 317-16

17 Claims

Apparatus for protecting electrical circuitry from voltage transients in a power supply or the like connected to the

circuitry. A plurality of diodes and a silicon controlled rectifier are connected in series across the output of the power supply. The silicon controlled rectifier is triggered by a predetermined transient voltage level, and the output voltage of the power supply is clamped at the sum of the forward voltage drops of the diodes and controlled rectifier, the



3,573,551

PROTECTION AGAINST ELECTRICAL SHOCK

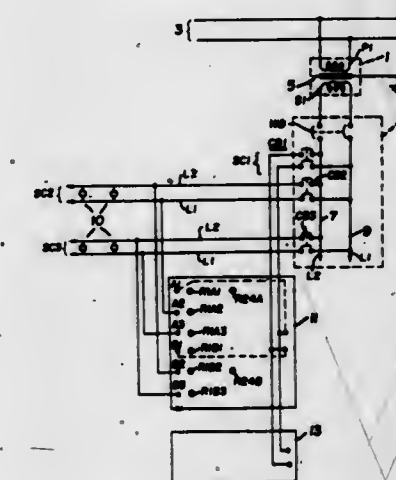
Richard C. Sircom, Windsor, Nova Scotia, Canada, assignor to Eastech Limited, Windsor, Nova Scotia, Canada

Filed June 16, 1969, Ser. No. 833,463

Int. Cl. H02h 9/00

U.S. Cl. 317-17

13 Claims



To reduce the danger of electrical shock in two-wire nongrounded electrical systems, the leakage current from line L1 to ground is balanced by an injected current from ground to line L1, and similarly the leakage current from line L2 to ground is balanced by an injected current from ground to line L2.

In this way, the leakage current from line L1 to ground cannot pass through a human body from ground to L2, since the leakage current form a closed current loop.

3,573,552

HIGH-IMPEDANCE, PERCENTAGE-STABILIZED BUSBAR DIFFERENTIAL PROTECTION

Thorleif Forfod, Dingtuna, Sweden, assignor to Allmannas Svenska Elektriska Aktiebolaget, Vasteras, Sweden

Filed Mar. 27, 1969, Ser. No. 810,991

Claims priority, application Sweden, Apr. 24, 1968, 5483/68

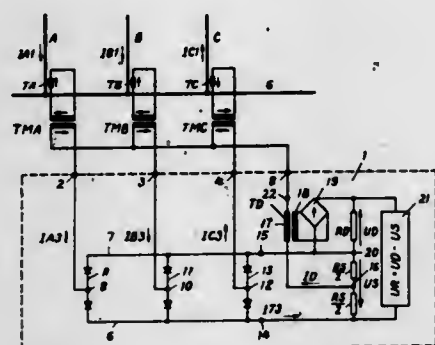
Int. Cl. H02h 3/16

U.S. Cl. 317-18

2 Claims

A relay device operating in response to abnormal conditions in a line includes an arrangement for deriving from the line a current proportional to the current in the line. One terminal of this current deriving device is connected to

the midpoint of a pair of rectifiers connected in series. The other terminal is connected to the midpoint between resistances of equal value connected in series with the pair of rectifiers. In the connection between the midpoint of the resistances and the terminal of the current deriving device is



arranged the primary of a transformer. The secondary of this transformer through a full-wave rectifier feeds the relay in parallel with a resistance. The arrangement is such that the relay is fed with the difference between the voltage across the latter resistance and the voltage across the two equal resistances.

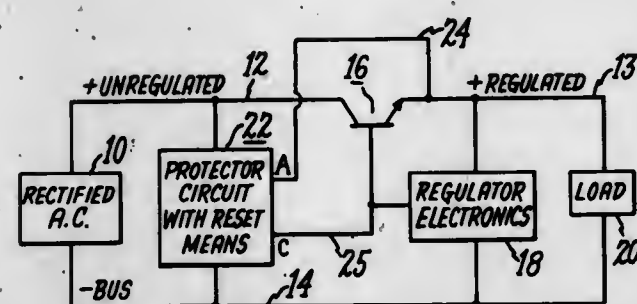
3,573,553

POWER SUPPLY PROTECTOR WITH RESET MEANS
Gerhard O. Mietz, Somersworth, N.H., assignor to General Electric Company

Filed June 10, 1968, Ser. No. 735,827
Int. Cl. H02h 3/24, 5/00

U.S. Cl. 317-22

4 Claims



An electronic control protector system electrically positioned between a DC source and the regulator controls of a DC voltage regulator to reduce conduction of the regulator transistor when the current drawn to the load becomes excessive. The electronic control includes a bypass transistor maintained nonconducting in normal operation. Excess current flow, as indicated by a voltage drop across the load, causes the bypass transistor to conduct and reduce conduction of the regulator transistor. Reset means are provided to provide a short pulse to cut off the bypass transistor allowing normal operation of the regulator. If excess current is still flowing, the bypass transistor will again be rendered conducting to reduce conduction of the regulator transistor.

3,573,554

MULTIPLE POWER SUPPLY OVERVOLTAGE AND INTERLOCK CONTROLLED CUTOFF
Donald J. Theobald, La Jolla, Calif., assignor to the United States of America as represented by the Secretary of the Navy

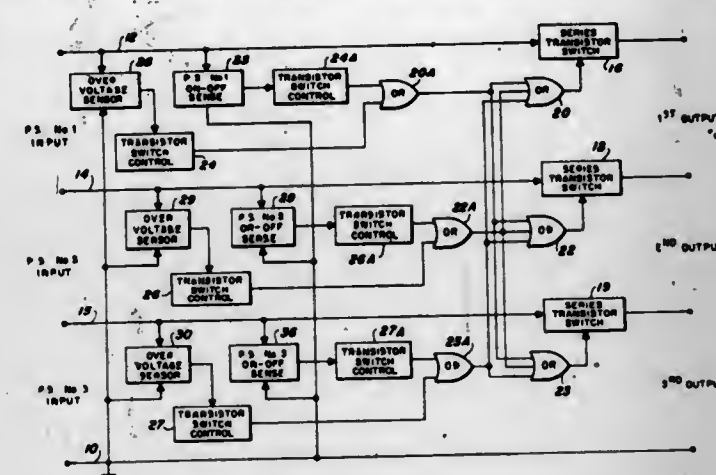
Filed July 1, 1969, Ser. No. 838,129
Int. Cl. H02h 3/24, 3/20

U.S. Cl. 317-31

5 Claims

In plural power circuits, all circuits are shut down in case of abnormal high or low voltage on any one of the several

circuits. Over and under voltage sensors are connected



across the circuits and through OR circuits to on-off switches in each power circuit.

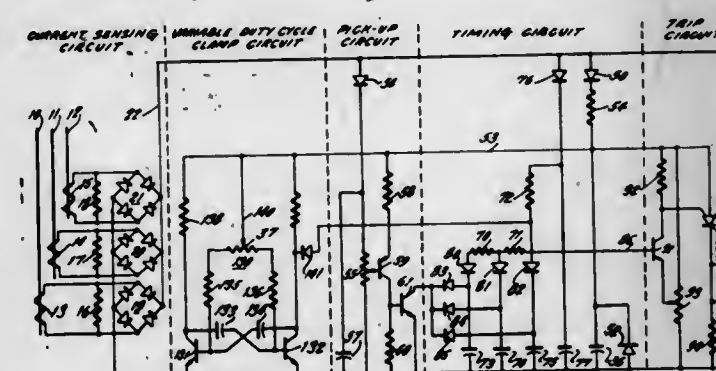
3,573,555

TIME DELAY EXTENDER FOR STATIC RELAYS
James W. Lipnitz, Cherry Hill, N.J., assignor to I-T-E Imperial Corporation, Philadelphia, Pa.

Filed Feb. 10, 1969, Ser. No. 797,966
Int. Cl. H01h 47/18

U.S. Cl. 317-33

6 Claims



A static relay using a resistance-capacitance network has a current-time characteristic which has an inverse relationship. The input to the network is connected through a free-running multivibrator which has an adjustable conduction period. Adjustment of the conduction period adjusts the time delay characteristic of the network over a large range without altering the time delay wave shape.

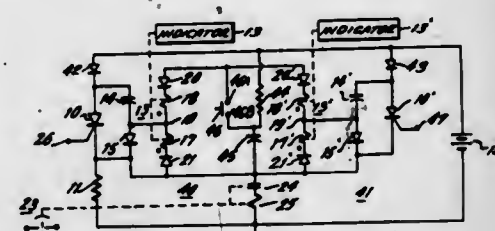
3,573,556

OPERATION INDICATOR CIRCUIT FOR STATIC OVERCURRENT RELAYS
Stanley E. Zocholl, Holland, Pa., assignor to I.T.E. Imperial Corporation, Philadelphia, Pa.

Filed May 22, 1969, Ser. No. 826,932
Int. Cl. H02b 7/00

U.S. Cl. 317-33

10 Claims



An operation indicator circuit for static overcurrent relays including a normally charged capacitor, discharge of which through a first polarity sensitive indicating circuit provides an indication of an overcurrent condition in electrical equipment and discharge of which through a second polarity sensitive indicating circuit after the overcurrent condition has been corrected provides an indication of the absence of an overcurrent condition.

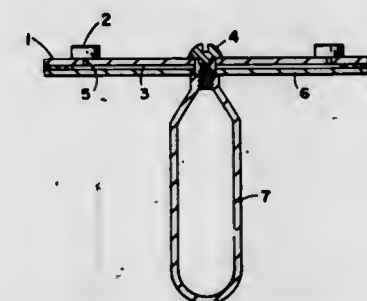
3,573,557

PRINTED CIRCUIT PROVIDED WITH COOLING MEANS
Daniel W. Riggs, Huntsville, Ala., assignor to the United States of America, as represented by the Secretary of the Army

Filed Feb. 6, 1970, Ser. No. 9,300
Int. Cl. H02b 1/00; H05k 1/02

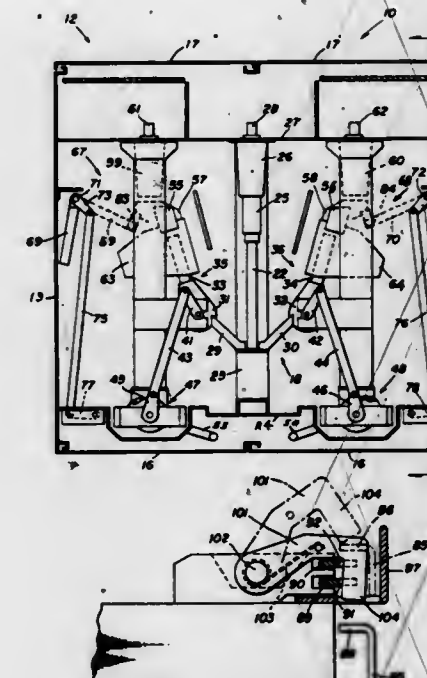
U.S. Cl. 317-100

2 Claims



A printed circuit having a board disposed for the support of disposed components and provided with channels extending from a central point to outlet holes in the board at positions of the components. A plate is secured to the board to enclose the channels and provide conduit communication between the outlet holes and a coolant storage bottle. The size of the ports and the width of the channels control the amount of coolant flowing from the bottle to the components for augmenting their current carrying capacity.

switches commonly connecting them to a loop feeder circuit. Manually operated grounding switches connect the switch contacts to ground. Interlocks prevent opening of the fuse drawer when the loop feeder switches are closed, closure of



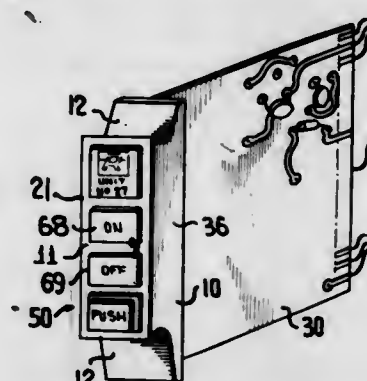
3,573,558

PRINTED CIRCUIT CARD HOLDER WITH CONTROL AND DISPLAY UNITS
Frank Draper Babcock, Eau Gallie, Fla., assignor to Radiation Incorporated, Melbourne, Fla.

Filed June 9, 1969, Ser. No. 831,672
Int. Cl. H02b 1/62

U.S. Cl. 317-101

7 Claims



A handle for a printed circuit card is provided with a slot for accepting the card, with keyed contacts at the edge of the card projecting into the slot. The card is permanently fastened to the handle by rivets. A plurality of spaced, substantially parallel holes extend through the handle from its front surface to a point of intersection with the slot to expose the contacts on the card. Separate indicator units and control units are slidably received in respective ones of the holes and are frictionally retained therein with spring-loaded terminals of the units electrically contacting the keyed contacts on the printed circuit card. A further array of keyed contacts at the opposite edge of the card is adapted to mate with a female connector when the card is inserted into position in a card shelf, the handle being exposed with legends and indicator units visible thereon and with control units accessible for selective exercise of control on the operation of the circuit carried by the card.

the loop feeder switches when the fuse drawer is open, grounding of the switch contacts when the loop feeder switches are closed, and closure of the loop feeder switches when the switch contacts are grounded.

3,573,560

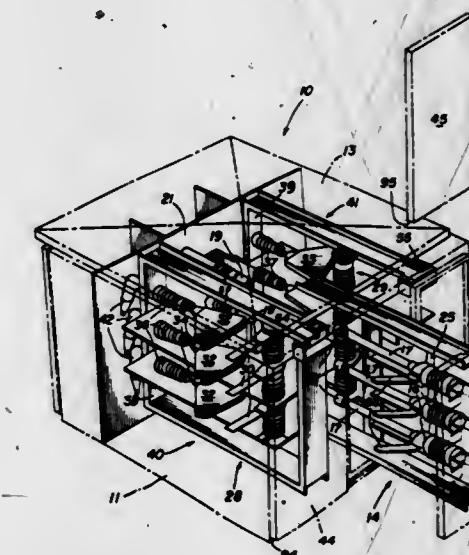
INTERLOCK SYSTEM FOR METAL ENCLOSED SWITCHGEAR HAVING A FUSE DRAWER AND SLIDING PANELS

Edward J. Rogers, Chicago, Ill., assignor to S & C Electric Company, Chicago, Ill.

Filed Sept. 18, 1969, Ser. No. 858,939
Int. Cl. H02b 1/04; H01h 9/20

U.S. Cl. 317-114

16 Claims



3,573,559

INTERLOCKING FUSE AND SWITCH SYSTEM FOR DISTRIBUTION OF ELECTRIC POWER
Edward J. Rogers, Chicago, Ill., assignor to S & C Electric Company, Chicago, Ill.

Filed Sept. 18, 1969, Ser. No. 859,109
Int. Cl. H02b 1/18, 1/14

U.S. Cl. 317-114

18 Claims

For distribution of electric power metal enclosed drawer-mounted fuses are provided having manually operated

A metallic housing encloses high voltage switchgear including a horizontally slidable fuse drawer having a switch pivoted on each side with vertically slidable access panels for the switches. An interlocking system prevents: opening of the fuse drawer and removal of the sliding panels unless both switches are open, closure of either of the switches with the fuse drawer open and replacing the panels in their fully closed positions after the fuse drawer is closed.

3,573,561

ENCLOSURE FOR PAD MOUNTED ELECTRICAL SWITCHGEAR HAVING SLIDING TOP AND END PANELS

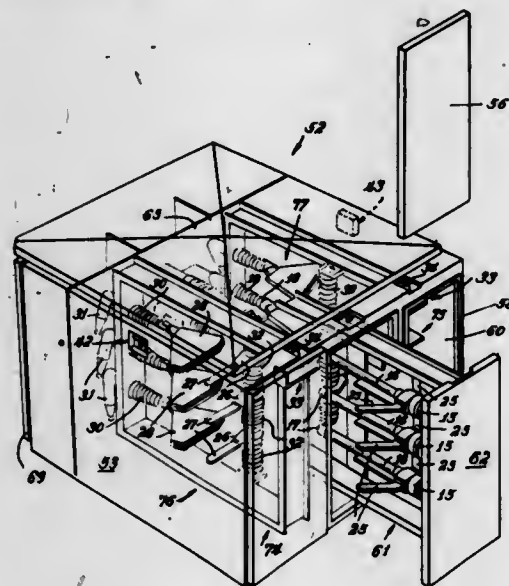
Emmett R. Beebe, Glenview, Ill., assignor to S & C Electric Company, Chicago, Ill.

Filed Sept. 16, 1969, Ser. No. 858,458

Int. Cl. H02b 1/04, 13/06

U.S. Cl. 317-114

13 Claims



Metallic housing for pad-mounted high voltage switches and fuses has sliding top panel which must be shifted forward or back to permit removal of back and front sliding access panels. A lock prevents movement of the top panel from overlying relation to the front and rear panels. Fuses are mounted in a drawer which is locked closed and can only be opened when the lock under the top panel is uncovered. Access to the manual operator for the switch assembly or assemblies is accessible only when the top panel is shifted back. A mechanical maze construction between exposed movable panels reduces likelihood of entrance of wire and the like.

3,573,562

MAGNET DRIVER CIRCUIT

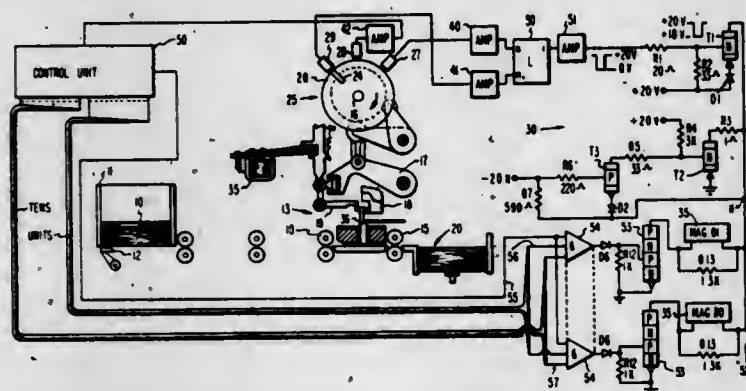
Charles C. Hanson, and Blayne E. Marling, Rochester, Minn., assignors to International Business Machines Corporation, Armonk, N.Y.

Filed Sept. 8, 1967, Ser. No. 666,401

Int. Cl. H01h 47/32

U.S. Cl. 317-123

4 Claims



An emitter controls the setting and resetting of a latch. The amplified set output of the latch turns on a current switch. The current switch conditions the anodes of silicon controlled rectifiers. The silicon controlled rectifiers are selectively turned on through logic circuitry. The magnets are connected in the anode circuit of the silicon controlled rectifiers.

The magnets are deenergized by tuning the silicon controlled rectifiers off. This is done by reverse biasing the silicon controlled rectifiers, anode to cathode, by turning the current switch off. When the current switch is turned OFF, current continues to flow through the silicon controlled rectifiers for a short time. A back e.m.f. is generated when the current in the magnet coil is decreasing. This back e.m.f. is used to turn on a transistor referenced to a particular negative potential. This transistor then provides base current for another transistor which provides a path for collapsing the fields of the magnet coils.

3,573,563

LOCKOUT CIRCUIT INCORPORATING ELECTROMAGNETIC RELAYS

Gunter Hovorka, Wien, Austria, assignor to International Standard Electric Corporation, New York, N.Y.

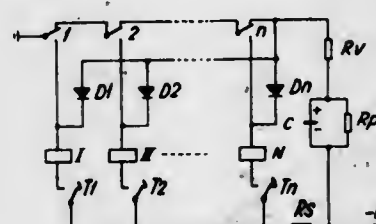
Filed July 1, 1968, Ser. No. 741,651

Claims priority, application Austria, July 28, 1967, A7,015/67

Int. Cl. H01h 47/00

U.S. Cl. 317-136

4 Claims



A lockout circuit is provided to prevent the operation of all but one of a plurality of interconnected reed relays. Each relay includes a two-way contact and a winding. A common resistance-capacitance circuit is employed to provide a potential to the relay winding to keep it energized during the time which elapses between the opening of a normally closed contact and the closing of a normally open contact.

3,573,564

RELAY TIME CONTROL CIRCUIT

Hans Blauert, Munich, Germany, assignor to Siemens Aktiengesellschaft, Munich, Germany

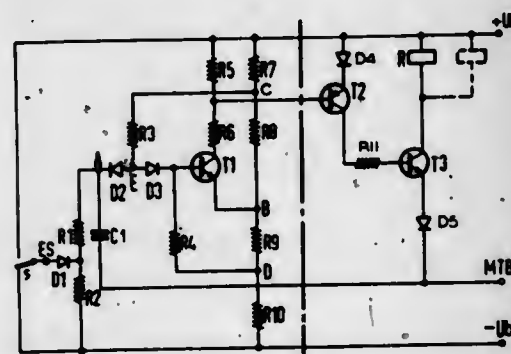
Filed May 13, 1968, Ser. No. 728,600

Claims priority, application Germany, May 23, 1967, S 109977

Int. Cl. H01h 47/18, 47/32

U.S. Cl. 317-142

8 Claims



A relay time control circuit that varies the inherent response and dropout times of the relay and maintains the actual response and dropout times to a defined range. An electronic switch is controlled by an RC time control circuit to initiate relay actuation when predetermined voltage conditions exist within the RC circuit. The electronic switch is decoupled from the time control circuit, and therefore temperature sensitivity of the electronic switch is not affected by the latter.

3,573,565

FLUID SEALED HOUSING FOR AN ELECTRICAL COMPONENT

Alfred Grunert, and Glass Werner, Heidenheim-Brenz, Germany, assignors to Siemens Aktiengesellschaft, Berlin and Munich, Germany

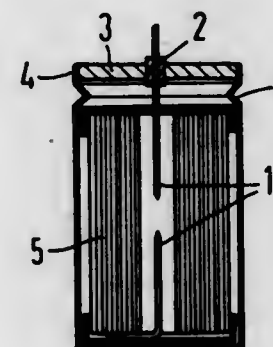
Filed July 16, 1969, Ser. No. 889,018

Claims priority, application Germany, July 16, 1968, G 67 53 244

Int. Cl. H01g 1/02; H01q 9/08

U.S. Cl. 317-230

2 Claims



A regenerable electrical condenser is disposed in a can-type housing having a lid tightly sealed thereto to prevent leakage. The condenser includes a mechanically operable fuse therein secured to the can and to the lid, and the can has corrugations for expansion upon a buildup of gas to cause separation of the fuse element. The lid is welded to the can to maintain a liquid-tight seal both before and after operation of the fuse.

3,573,566

SOLID ELECTROLYTE CAPACITOR WITH AXIAL LEADS AND METHOD OF ATTACHING THE SAME

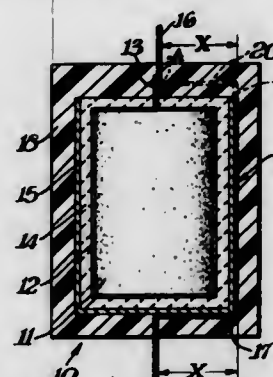
Lawrence E. Fournier, Kennebunkport, and Robert S. Shuris, Kennebunk, Maine, assignors to Sprague Electric Company, N. Adams, Mass.

Filed Apr. 8, 1969, Ser. No. 814,374

Int. Cl. H01g 9/05

U.S. Cl. 317-230

4 Claims



A solid electrolyte capacitor is provided with axially aligned cathode and anode lead wires, with the cathode lead in electrical contact over a substantial portion of the cathode surface. The leads are attached by inserting a capacitor section into a wireform at a point along its length having a preshaped angular configuration designed to generally conform to portions of an end and side surface of the capacitor section. The wireform is connected to both the anode riser and substantial portions of the cathode coating and then severed at nonconforming locations so as to electrically isolate the ends of the wireform.

3,573,567

SOLID-STATE SWITCH HOUSING

Robert L. Harris, North Scituate, and Joseph P. Stefani, Warwick, R.I., assignors to General Electric Company

Filed Apr. 8, 1969, Ser. No. 814,246

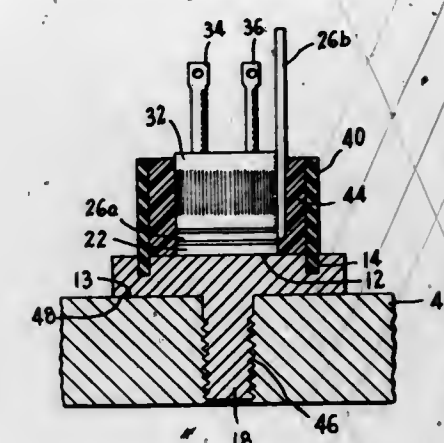
Int. Cl. H01l 1/06

U.S. Cl. 317-234

1 Claim

The present invention relates to a solid-state switch housing and heat sink. More particularly it provides a heat

sink which is readily mountable to a larger heat sink and in an insulating enclosure which provides a relatively long



electrical path between the switch and the heat sink as compared to the heat transfer path from the switch to the heat sink.

3,573,568

LIGHT EMITTING SEMICONDUCTOR CHIPS MOUNTED IN A SLOTTED SUBSTRATE FORMING A DISPLAY APPARATUS

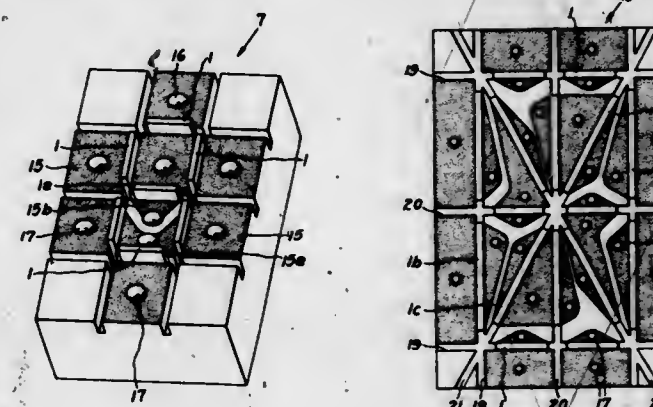
Harvey V. Siegel, Mayfield Heights, Ohio, assignor to General Electric Company

Filed June 18, 1969, Ser. No. 834,338

Int. Cl. H01l 15/00

U.S. Cl. 317-234

4 Claims



An insulating substrate has slots in its face corresponding to the visual display pattern in which light-emitting chips consisting of solid-state PN junctions are mounted. The chips have ohmic contacts to the P and N-type material on opposite sides which are connected by brazing or soldering to metallized portions on opposite sides of the slots. External electrical connections are made through current feed pins passing through the substrate and connected to the metallized portions. The chips emit edgewise a bright pattern easily visible under room illumination levels.

3,573,569

CONTROLLED RECTIFIER MOUNTING ASSEMBLY

Roland O. Davis, Mt. Clemens, and George Spira, Goleta, Calif., assignors to General Motors Corporation, Detroit, Mich.

Filed Aug. 12, 1969, Ser. No. 849,368

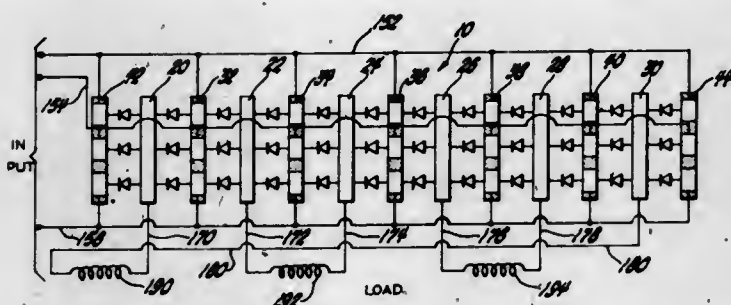
Int. Cl. H01l 1/12, 1/14

U.S. Cl. 317-234

6 Claims

A mounting assembly for power semiconductor devices forming a power supply circuit includes a first series of solid conductor mounting plates and a second series of insulated mounting plates for supporting pressure contact-type semiconductors in thermal and electrical conducting relationships. Pressure is evenly applied across the

semiconductor devices which are arranged in a plurality of stacks. A cooling arrangement is included in the assembly to



increase heat dissipation from both sides of each semiconductor.

3,573,570

OHMIC CONTACT AND ELECTRICAL INTERCONNECTION SYSTEM FOR ELECTRONIC DEVICES

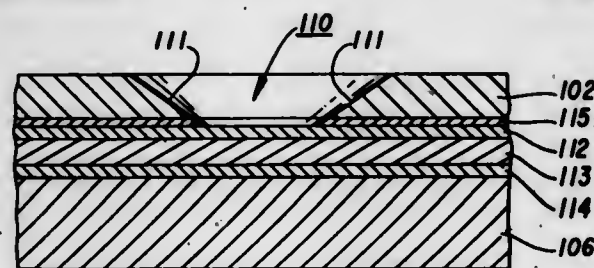
Clyde R. Fuller, Plano, and James A. Cunningham, Dallas, Tex., assignors to Texas Instruments Incorporated, Dallas, Tex.

Continuation of application Ser. No. 715,462, Mar. 4, 1968, now abandoned. This application Feb. 26, 1970, Ser. No. 14,767.

Int. Cl. H011 3/00, 5/00

U.S. Cl. 317-235

22 Claims



Disclosed is a tungsten ohmic contact and electrical interconnection system for semiconductor devices. Particularly, a system of one or more levels of multilayer metal interconnections for integrated circuits. The multilayer metal interconnections are composed of outer tungsten layers of metal that adhere well to silicon and silicon oxide with an intermediate layer of high conductivity metal. Different levels of multilayer metal interconnections are separated from one another by insulating layers with holes that allow ohmic contacts to be made between different levels. The final or top multilayer metal interconnections can have one adherent metal layer covered by the high conductive metal layer.

3,573,571

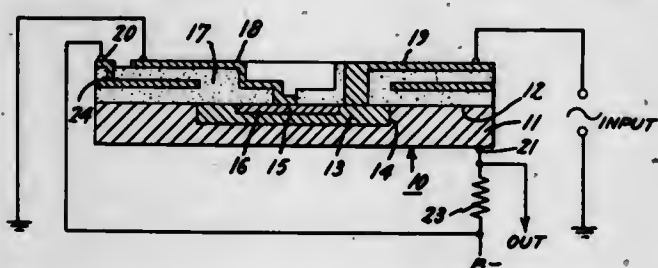
SURFACE-DIFFUSED TRANSISTOR WITH ISOLATED FIELD PLATE

Dale M. Brown, Niskayuna, and William E. Engeler, Scotia, N.Y., assignors to General Electric Company. Continuation-in-part of application Ser. No. 675,226, Oct. 13, 1967, now abandoned. This application May 1, 1968, Ser. No. 725,825.

Int. Cl. H011 1/14

U.S. Cl. 317-235

10 Claims



A surface-diffused transistor exhibiting high stability and low collector capacitance includes a metallic field plate

buried within an insulating film which covers the active major wafer surface thereof and passivates a surface-adjacent collector junction. Metal field plate is fixed to a negative potential and prevents inversion of a surface-adjacent region of the P-type semiconductor, thereby preventing surface leakage and increased capacitance.

3,573,572

CONTROLLED RECTIFIER HAVING HIGH RATE-OF-RISE-OF-CURRENT CAPABILITY AND LOW FIRING GATE CURRENT

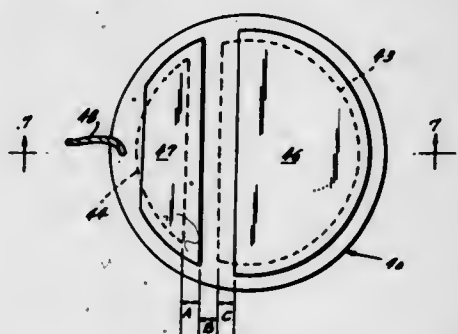
David Cooper, Palos Verdes, and Harold Weinstein, Van Nuys, Calif., assignors to International Rectifier Corporation, Los Angeles, Calif.

Filed Sept. 23, 1968, Ser. No. 761,587

Int. Cl. H011 1/10

U.S. Cl. 317-235

3 Claims



A semiconductor controlled rectifier having an auxiliary cathode region and a main cathode region with a main control gate lead disposed adjacent to the auxiliary cathode region. The controlled rectifier including the auxiliary cathode region can be fired by a relatively low gate current. The output current of the auxiliary cathode region is connected to auxiliary gates disposed in proximity to the main cathode and supplies necessary current for turning on the main portion of the controlled rectifier.

3,573,573

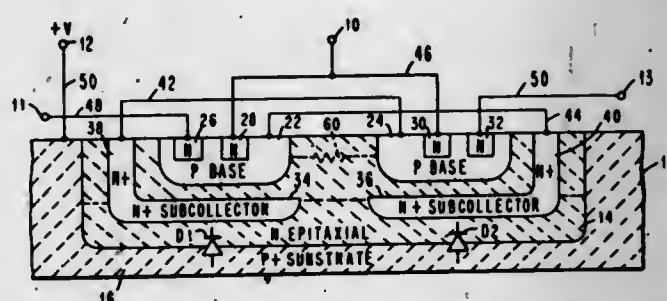
MEMORY CELL WITH BURIED LOAD IMPEDANCES. Richard L. Moore, Poughkeepsie, N.Y., assignor to International Business Machines Corporation, Armonk, N.Y.

Filed Dec. 23, 1968, Ser. No. 786,068

Int. Cl. H011 19/00

U.S. Cl. 317-235

5 Claims



This specification describes semiconductor storage cells for use in monolithic memories. These cells each have two planar transistors formed on a single surface of a monolithic chip. The planar transistors are coupled together to form a bistable circuit and are supplied power from a voltage distribution layer of the chip under the planar transistors so that the load elements for the storage cells are formed vertically through the monolithic chip between the voltage distribution layer and the planar transistors.

3,573,574

CONTROLLED RECTIFIER MOUNTING ASSEMBLY. Roland O. Davis, Mount Clemens, Mich., assignor to General Motors Corporation, Detroit, Mich.

Filed Aug. 12, 1969, Ser. No. 849,367

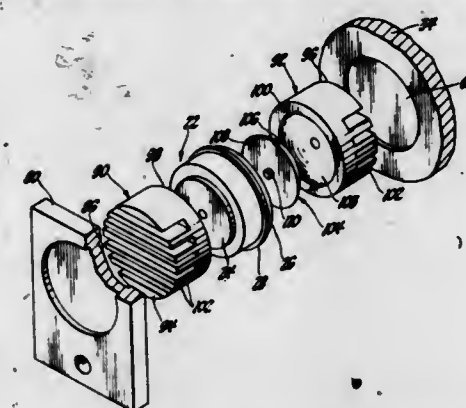
Int. Cl. H011 1/12, 1/14

U.S. Cl. 317-234

6 Claims

A mounting assembly for a semiconductor power supply circuit includes a first series and a second series of mounting

supports having heat sink members for attaching opposite ends of pressure contact type semiconductors to the mounting supports. The heat sinks provide cooling of the semiconductors and also include spherical joints for distributing compressive pressures evenly across the ends of



each semiconductor. The semiconductors and mounting supports are assembled in a stacked arrangement which forms integral power supply circuit connections. A cooling system, is provided for circulating and cooling a liquid coolant which flows through the heat sinks.

3,573,575

CAPACITOR IMPREGNATED WITH CROSSLINKED BUTADIENE HOMOPOLYMER AND METHOD OF MAKING SAME

Thomas G. Brady, Oneonta, and Richard L. Elliott, Sidney, N.Y., assignors to The Bendix Corporation

Filed Dec. 5, 1968, Ser. No. 781,634

Int. Cl. H01g 1/00

U.S. Cl. 317-258

10 Claims

The capacitors of this invention are impregnated with a composition having high dielectric strength, excellent insulation resistance, low dissipation factor, excellent resilience when new and after long storage, and resistance to pulse testing which is very high. Their cost is low. They involve impregnants being a liquid, hydroxyl terminated butadiene homopolymer catalytically cross-linked by diallyl isophthalate or the like. A preferred catalyst combination is revealed. Methods of impregnation are discussed.

3,573,576

AUTOMATIC REMOTE CONTROL SYSTEM FOR SEQUENTIALLY STARTING AIR-CONDITIONING EQUIPMENT

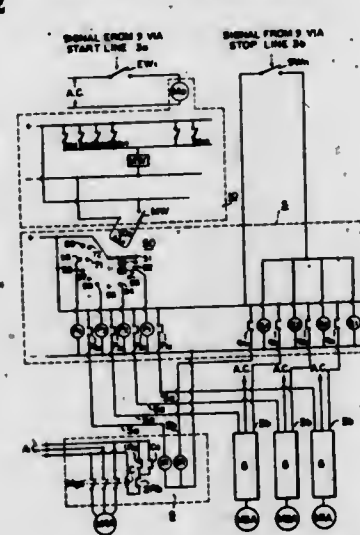
Toshio Nakabo, Osaka-fu, Japan, assignor to Obayashi-Gumi, Ltd., Osaka-shi, Japan

Continuation-in-part of application Ser. No. 412,519, Nov. 19, 1964, now abandoned. This application Sept. 6, 1967, Ser. No. 675,267

Int. Cl. H02p 1/54

U.S. Cl. 318-102

6 Claims



A plugboard having row and column connections is used to program the switch-on and switch-off time of air-

conditioning units, arranged in groups; to prevent the sudden surge of starting current upon simultaneous energization of a multiplicity of air-conditioning subunits, a sequence switching device, such as a stepping switch interconnects individual air-conditioning subunits within a group sequentially to the power source; the sequence switching device is controlled by a pulse source providing sequential connecting pulses.

3,573,577

CONTROL SYSTEM FOR BRUSHLESS SYNCHRONOUS MOTOR

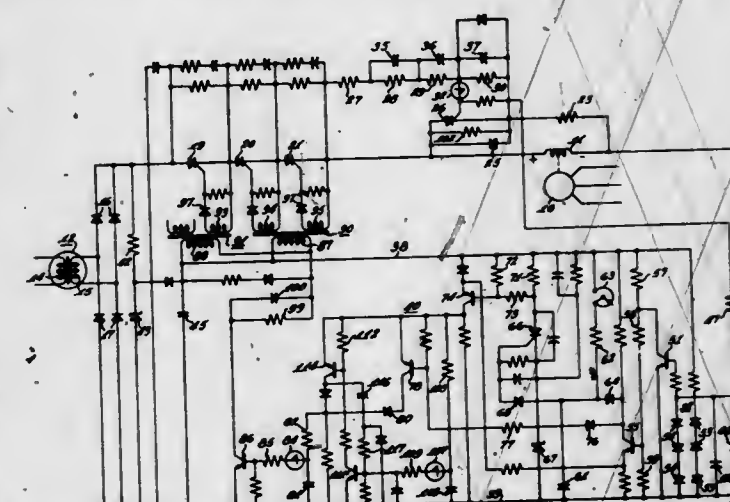
Donald R. Boyd, Waukesha, Wis., assignor to Allis-Chalmers Manufacturing Company, Milwaukee, Wis.

Filed June 30, 1969, Ser. No. 837,808

Int. Cl. H02p 1/50

U.S. Cl. 318-176

19 Claims



A system for controlling excitation to a synchronous motor has thyristors for connecting a D.C. source to the field winding, means for sensing when motor speed and rotor angle are most favorable for applying excitation, and oscillator means controlled by the sensing means for applying a succession of gating pulses to the thyristors to prevent them from being commutated off before the motor pulls into synchronism. Semiconductor switching means control insertion of the field discharge resistance in circuit with the field winding, and an impedance in shunt with the switching means is selected so that the current through it and the field discharge resistance in series is greater, when the switching means is open, than the hold-in current of the thyristors, thereby assuring that the thyristors are not commutated off before the motor synchronizes.

3,573,578

ELECTRIC MACHINE ARRANGEMENTS INCLUDING ELECTRIC ROTATING MACHINES

Fukuo Shibata, No. 3-22 Tokiwa-cho, Nishinomiya, Japan

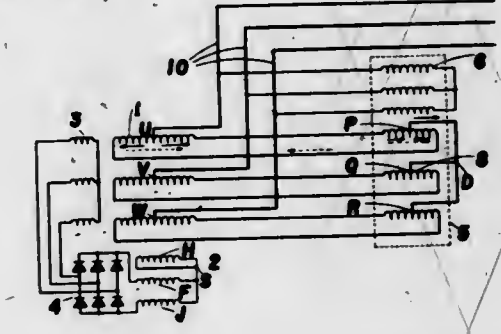
Filed June 18, 1969, Ser. No. 834,311

Claims priority, application Japan, June 19, 1968, July 13, 1968, Nov. 18, 1968, 43-50181; 43-50180; 43-50184

Int. Cl. H02p 7/36

U.S. Cl. 318-185

10 Claims



When terminals in each phase of primary and secondary winding of a transformer are respectively electrically connected with a middle point and both terminals in each

phase of armature stator winding of an electric rotating machine so that electric power can be transferred between the transformer and the rotating machine, two kinds of currents can flow simultaneously in the armature winding, therefore two different numbers of poles can be produced simultaneously in the stator; and the machine can operate as two rotating machines, when the machine has two kinds of rotor windings.

3,573,579

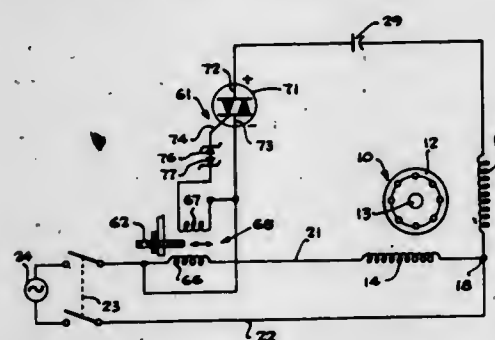
SINGLE-PHASE MOTOR CONTROLS USING UNITARY SIGNAL-CONTROLLED BI-DIRECTIONAL SEMICONDUCTOR GATE DEVICES

Alexander J. Lewis, 9230 N. 14th Ave., Phoenix, Ariz.
Continuation-in-part of application Ser. No. 362,764, Apr. 27, 1964, now abandoned, Continuation-in-part of application Ser. No. 666,269, Sept. 8, 1967, now abandoned. This application Jan. 21, 1970, Ser. No. 4,562

Int. Cl. H02p 1/44

U.S. Cl. 318-221

15 Claims



External control circuits for single-phase electric motors of the split-phase, capacitor-start inductance-run, and capacitor-start capacitor-run kinds in which the starting winding is connected to a power supply through a series circuit including a single unitary signal-controlled bidirectional gate device or by a plurality of such devices triggered from a common sensing means. In each circuit, the sensing means is connected in series with the power circuit for the main or running winding of the motor; the sensing means may be an adjustable series resistor or inductance or an air gap sensing transformer having an adjustable magnetic core with the primary winding of the transformer in series in the main winding circuit. The trigger or gate electrode of the gate device, referred to commercially as a triac or a quadrac, is connected to the sensing means to gate the device on for motor currents above a given threshold and to gate the device off for motor currents below a threshold value, the threshold levels being determined by adjustment of the sensing device.

3,573,580

SOFT STARTING DEVICE FOR MOTORS

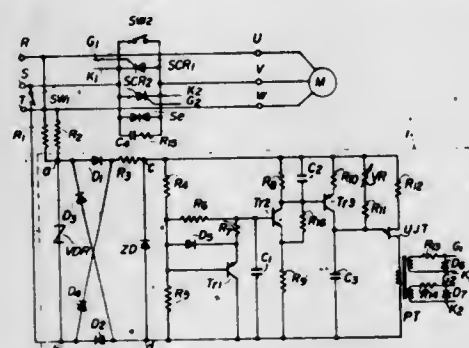
Nozomu Shinozaki, Neyagawa-shi, Japan, assignor to Matsushita Electric Industrial Co., Ltd., Osaka, Japan
Filed Apr. 21, 1969, Ser. No. 817,896

Claims priority, application Japan, Apr. 26, 1968, 43/35281

Int. Cl. H02p 5/40

U.S. Cl. 318-227

4 Claims



A soft starting device so designed that when a three-phase induction motor is to be started by applying a full line voltage

of a power source thereto, the device starts the motor with an extremely low starting torque and thereafter gradually increases the motor speed to cause it to proceed into a steady state rotation.

3,573,581

SYSTEM FOR CONTROLLING NEEDLE POSITIONING DRIVE AND THREAD TRIMMING FUNCTIONS OF AN INDUSTRIAL SEWING MACHINE DRIVEN BY A CONTINUOUSLY COUPLED DC MOTOR

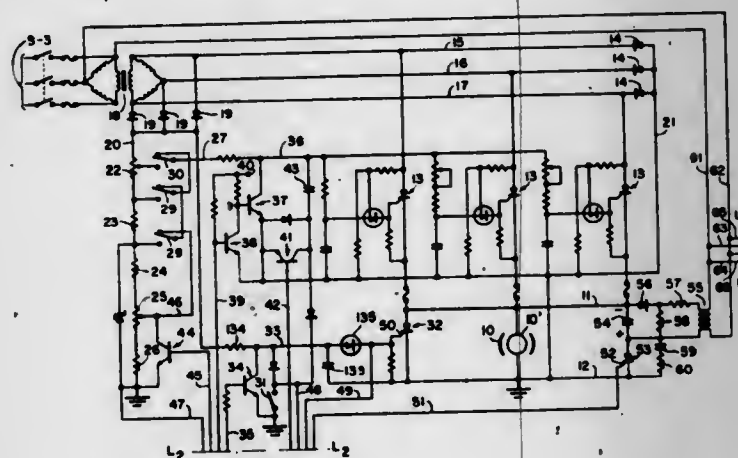
John J. Dutko, North Plainfield; Richard Beck, Morris Plains, and Henry A. Seesselberg, South Plainfield, N.J., assignors to The Singer Company, New York, N.Y.

Filed June 24, 1969, Ser. No. 836,103

Int. Cl. H02p 3/06

U.S. Cl. 318-266

10 Claims



Solid-state digital logic circuitry with gates, memory flip-flops, delay and sensor elements provide a logic system for controlling the drive and braking currents to a DC motor continuously coupled in driving relation to a sewing machine. In response to certain input commands, a series of events are signaled by the logic circuitry to occur automatically in a predetermined time sequence resulting in a desired output sewing related function. Silicon controlled rectifiers (SCR's) are used to supply driving current to the motor from a polyphase voltage supply. A single SCR is used to supply dynamic braking current for the motor. The single SCR is turned off to terminate a first braking period when a solid-state switch operates responsively to a speed sensor to reduce the SCR current below its holding value.

3,573,582

LARGE DC MOTOR CONTROL CIRCUIT

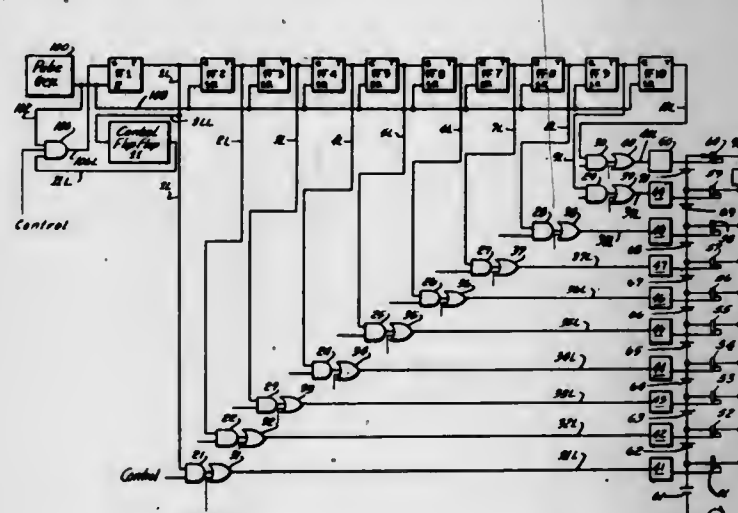
Edward A. Petrocelli, San Diego, Calif.

Filed Mar. 20, 1969, Ser. No. 808,735

Int. Cl. H02p 1/28, 7/14

U.S. Cl. 318-305

10 Claims



A motor control apparatus for starting, stopping, and regulating the speed of large electric motors.

3,573,583

DC MOTOR SPEED CONTROL SYSTEM

William M. McCampbell, Huntsville, and Hershel M. Nance, Harvest, Ala., assignors to the United States of America as represented by the Administrator of the National Aeronautics and Space Administration

Filed Dec. 16, 1969, Ser. No. 885,571

Int. Cl. H02p 5/16

U.S. Cl. 318-317

6 Claims

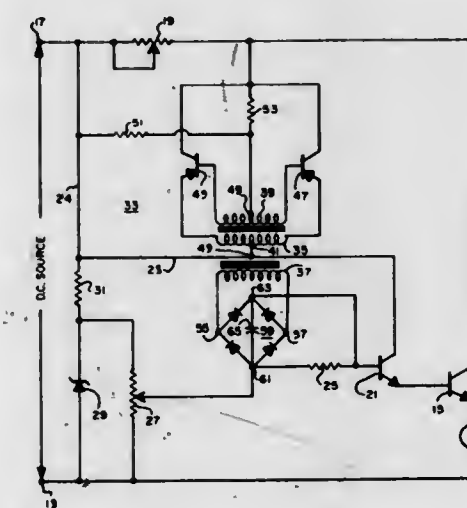
INTERMITTENT WINDSHIELD WIPER MOTOR CONTROL

John C. Taylor, Otters 'Ole, Market St., Buxton, England
Filed May 5, 1969, Ser. No. 821,813

Claims priority, application Great Britain, May 15, 1968, 23157/68

Int. Cl. B60s 1/08

4 Claims



A motor speed control circuit wherein a signal proportional to the IR drop of the armature is utilized to drive a self-excited inverter to obtain a feedback voltage equal to the IR drop of the armature. The feedback voltage is added as a positive feedback to a constant DC voltage to form the input to a unity gain amplifier. The last stage of the amplifier is in series with the armature of the motor. The speed at which the motor operates is controllable by means of varying the value of the constant DC voltage.

3,573,584

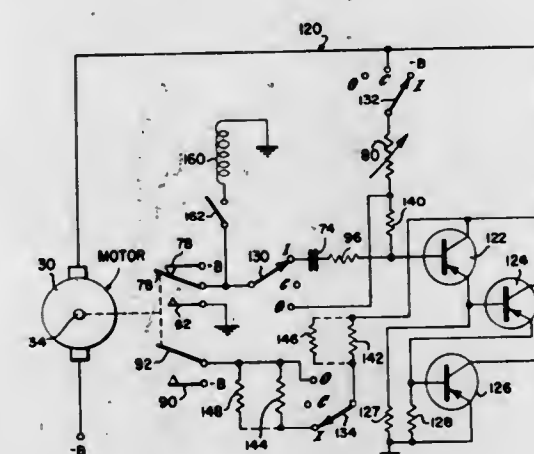
MOTOR SPEED CONTROL

Robert W. Kearns, 20524 Rutherford, Detroit, Mich.
Continuation-in-part of application Ser. No. 414,973, Dec. 1, 1964, now abandoned. This application Sept. 1, 1967, Ser. No. 666,549

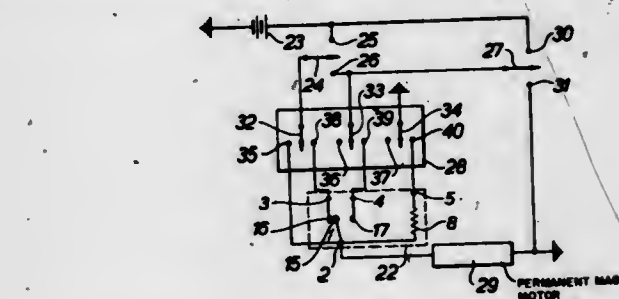
Int. Cl. H02p 5/10

U.S. Cl. 318-331

9 Claims



A windshield wiper control which operates the wiper blades continuously or intermittently with a dwell period between each wiping cycles. In the intermittent operation the wiper blades are responsive to the condition of the windshield. Transistors are provided for controlling the intermittent operation and also for controlling the continuous mode of operation.



Control means for a vehicle windscreen wiper including an operating mode, for use in light rainfall for example, in which the wiper operates intermittently under the control of a thermally sensitive switch actuated by an auxiliary heater to interrupt the power supply to the wiper upon actuation of the switch with rising temperature and to restore the power supply upon actuation with falling temperature; energization of the switch actuating heater is continued during each cycle until the wiper parks.

ERRATUM

For Class 318-578 see:
Patent No. 3,573,546

3,573,586

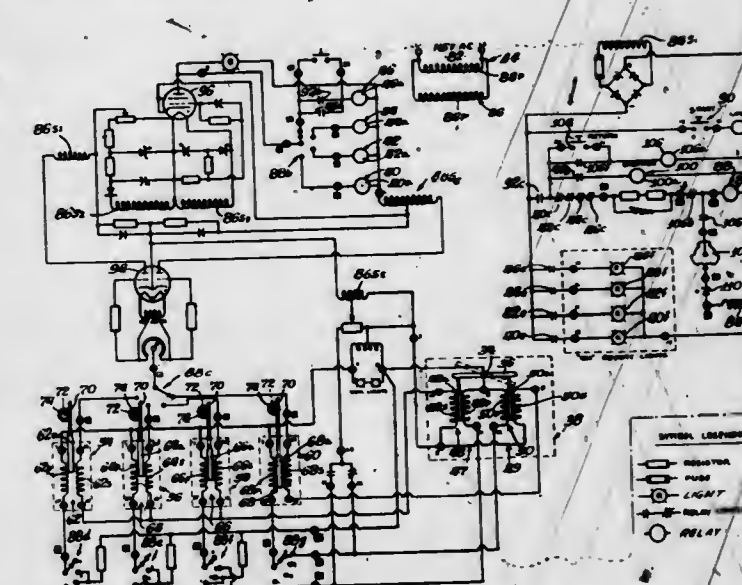
SERVO CONTROL FOR MOVEMENT OF A DEVICE THROUGH SUCCESSIVE STEPS

Arthur K. Littwin, 6555 LeMai, Lincolnwood, Ill.
Continuation-in-part of application Ser. No. 455,564, May 13, 1965, now abandoned. This application Nov. 26, 1968, Ser. No. 779,103

Int. Cl. G05b 19/36

U.S. Cl. 318-579

4 Claims



Electrical control apparatus for controlling the movement of a machine tool part, such as a grinding wheel; the machine tool has internal mechanism and controls for advancing the grinding wheel, and the present apparatus includes presettable induction means responsive to the advancing movement for controlling that movement the predetermine a definite maximum range of movement and establish a series of steps within that range; the steps can be of any desired extent independent of the extent of the maximum range, and need not be equal divisions of that range; e.g., if nine one-thousandths inch of material is to be removed from a

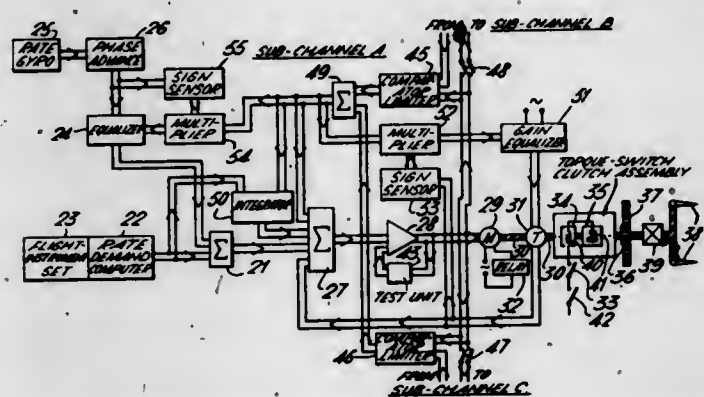
workpiece by the grinding wheel, the apparatus may be preset to automatically remove four increments of two one-thousandths inch each and a final increment of one one-thousandths inch.

3,573,587 MULTIPLEX SYSTEMS

Roger I. Bishop, Bishops Cleeve; Terence J. Grimwood, Cheltenham, and John L. Weston, Churchdown, England, assignors to Smiths Industries Limited, London, England
Filed Sept. 16, 1969, Ser. No. 858,296
Int. Cl. G05b 9/02

U.S. Cl. 318—564

16 Claims



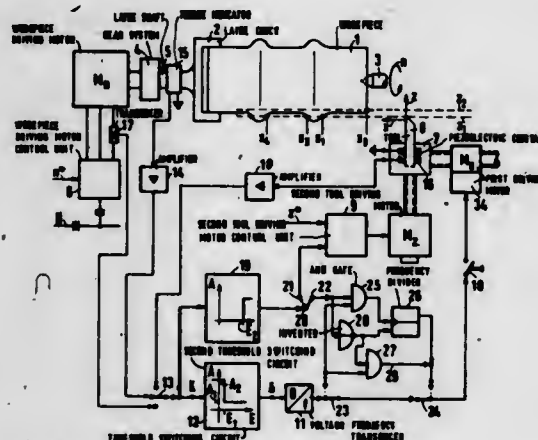
A triplex servocontrol channel of an aircraft flight-control system includes equalization that balances out acceptable inequalities between the three servo subchannels and involves the application degeneratively in each subchannel of two difference signals that are derived therein in accordance respectively with the differences in output as between that subchannel and the other two subchannels. The difference signals are individually limited in magnitude before application degeneratively in the respective subchannel. Each subchannel servomotor is coupled to an output gear common to the three subchannels via a torque-switch that declutches the motor from the gear under excessive torque-loading.

3,573,588 AUTOMATIC FEED CONTROL SYSTEM FOR A MACHINE

Werner Geyer, Nurnberg; Rolf Klinge, Reutles, and Jurgen Meyer, Erlangen, Germany, assignors to Siemens Aktiengesellschaft, Berlin and Munich, Germany
Filed Nov. 21, 1968, Ser. No. 777,832
Claims priority, application Germany, Nov. 28, 1967, P 16 02 973.5
Int. Cl. G05b 19/24

U.S. Cl. 318—571

10 Claims



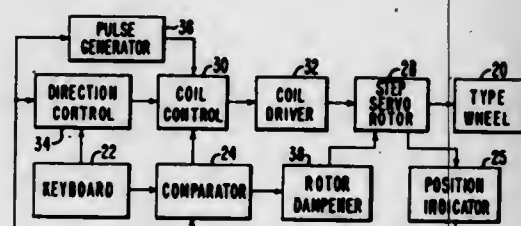
A magnitude which depends upon the forming power of a machine having a machine tool adapted to engage a workpiece is determined. The tool is rapidly driven while it is out of engagement with the workpiece. The drive of the tool is slowed when it engages the workpiece and the magnitude depending upon the forming power of the machine exceeds a lower threshold value.

3,573,589 POSITION SERVO SYSTEM FOR A MOTOR INCLUDING DETENTING AT DESTINATION

Jack Berry, Farmington, Mich., assignor to Burroughs Corporation, Detroit, Mich.
Filed Apr. 1, 1969, Ser. No. 812,006
Int. Cl. G05b 19/28

U.S. Cl. 318—601

6 Claims



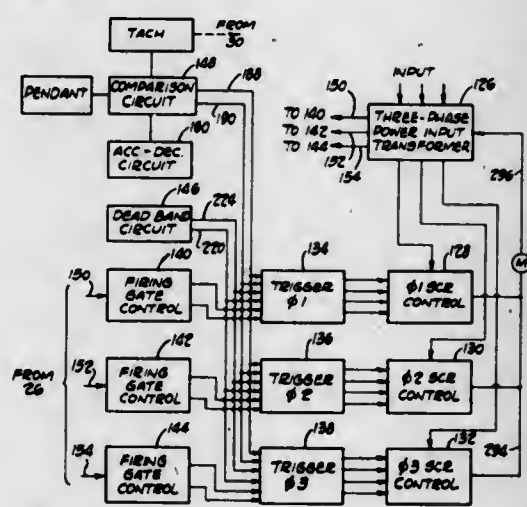
The disclosure embodies a servo system to position a rotatable print wheel with any one of a number of selectable printing type at a print line. The system includes a reversible electric step motor having a number of pulsable induction coils to rotate the print wheel. Selections of print wheel positions are effected by signals from keyboard actuated switches and the position selected is indicated by a position indicator which is driven by the step motor synchronously with the print wheel. A comparator receives and compares the signals from the keyboard actuated switches with signals from the position indicator to determine the angular displacement between the selected position and present position of the print wheel. Through digital logic systems including a pulse generator and a direction selection means, the number of pulses supplied to the motor to position the print wheel is effected along with the rotational driving of the wheel in the direction requiring least angular displacement of the wheel to reach the selected position. During the positioning of the print wheel, a control member responds to a match between the keyboard selected position and the position indicator to dynamically brake the step motor by simultaneously energizing all of the induction coils.

3,573,590 HORIZONTAL BORING MACHINE

John F. Reed, Middleburg Heights, Ohio, assignor to The New Britain Machine Company, New Britain, Conn.
Continuation-in-part of application Ser. No. 835,441, June 23, 1969. This application Dec. 5, 1969, Ser. No. 882,660
Int. Cl. G05b 5/01

U.S. Cl. 318—618

5 Claims



A machine tool including a movable spindlehead member having an extensible and retractable tool spindle member, and a work-supporting compound slide assembly having two slide members movable in directions at right angles to one another. All members can be selectively "inched" and moved at feed and transverse rates in opposite directions along their respective paths of movement by two variable speed motors, one connectable to the spindlehead or the tool spindle and

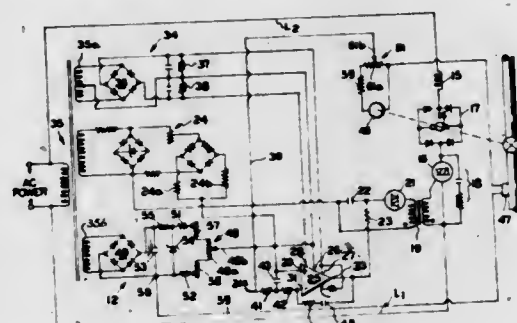
the other to either of the two slide members of the work-supporting compound slide. The motors are connected to their respective tool and work-moving members through discrete transmissions of the continuously meshed gear type under the control of hydraulically-actuated clutches. Spindle feed is alternatively provided from a spindle drive motor to correlate feed with rotation. Brake discs selectively deflectable against fixed abutments and connected to rotatable parts will maintain selected tool and work-carrying members in fixed positions.

3,573,591 PROPORTIONAL SPEED FLOATING CONTROLLER

Quentin C. Turtle, Cranston, R.I., assignor to General Signal Corporation
Filed Aug. 8, 1969, Ser. No. 848,660
Int. Cl. G05f 1/08

U.S. Cl. 318—681

6 Claims



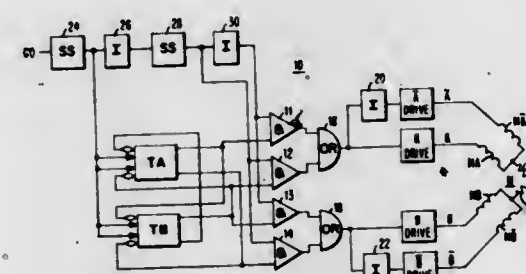
Solid-state proportional speed floating controllers employing an integrating amplifier in the feed-forward path and a tachometer generator for producing a velocity feedback signal. The final controlling element is positioned by a DC or universal motor which also drives the tachometer and which is supplied with power through a static switch which is gated by a static trigger. The firing angle of the trigger is controlled by an RC timing circuit that receives line synchronized voltage pulses on which is superimposed the output voltage of the amplifier.

3,573,592 SINGLE STEP STEPPING MOTOR CONTROL

Gerald J. Agin, Owego, N.Y., assignor to International Business Machines Corporation, Armonk, N.Y.
Filed Aug. 15, 1969, Ser. No. 850,584
Int. Cl. H02p 37/00

U.S. Cl. 318—696

3 Claims



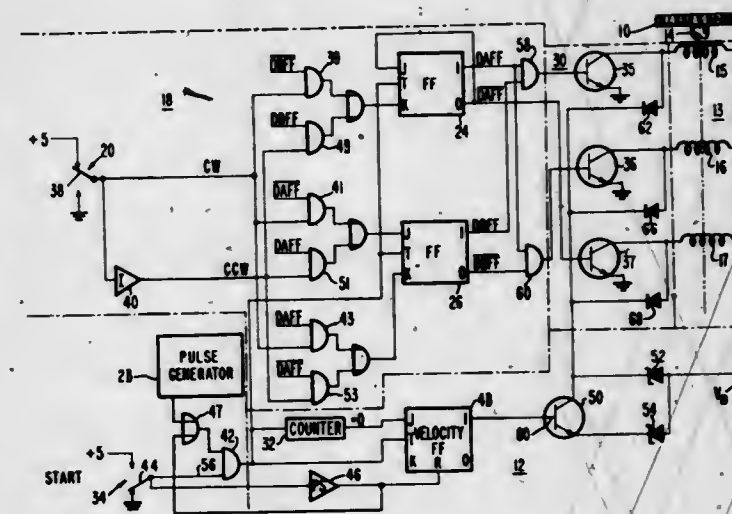
Nonoscillatory single step operation of a stepping motor is obtained by using the usual drive triggers to start the step operation, and using gating circuits therewith to obtain a one step-backward function logically from the trigger outputs and a Stop single shot for terminating the single step operation.

3,573,593 ANGULAR VELOCITY CONTROL SYSTEM FOR STEP SERVO MOTOR SYSTEM RESPONSIVE TO WINDING DEENERGIZATION

Jack Beery, Farmington, Mich., assignor to Burroughs Corporation, Detroit, Mich.
Filed Apr. 1, 1969, Ser. No. 812,005
Int. Cl. G05b 19/40

U.S. Cl. 318—696

6 Claims



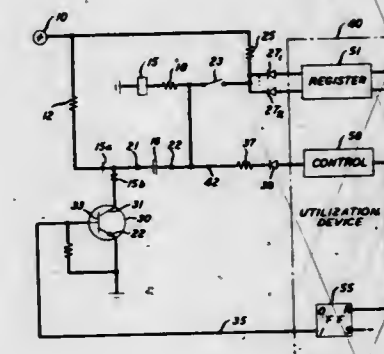
The disclosure embodies an electrical system for a bidirectional step servomotor to control the dissipation of counter torque developed by the deenergization of each rotor coil. The amplitude of the induced voltage generated when each rotor coil is deenergized is electrically controlled by a selected one of a plurality of voltage regulators. Each voltage regulator has a different regulating voltage. The larger the amplitude of the induced voltage, the faster the dissipation time of the counter torque, therefore, the higher the angular velocity of the rotor.

3,573,594 SINGLE PULSE GENERATING CIRCUIT

Daniel Daniels, Wheaton, Ill., assignor to Bell Telephone Laboratories, Incorporated, Murray Hill, Berkeley Heights, N.J.
Filed Apr. 4, 1968, Ser. No. 718,850
Int. Cl. H02m 1/00

U.S. Cl. 320—1

7 Claims



A circuit uses a capacitor store to generate a single pulse in response to the closing of a switch. A first terminal of the capacitor is normally connected to a charging source. The closing of the switch transfers the first terminal from the charging source to a discharge path after a predetermined time delay. The discharge path is completed in response to a control signal so that the capacitor is discharged and a single pulse appears at the second terminal of the capacitor.

3,573,595 CONSTANT CURRENT FEEDBACK REGULATOR WITH ADJUSTABLE IMPEDANCE FOR MAINTAINING CONSTANT CURRENT

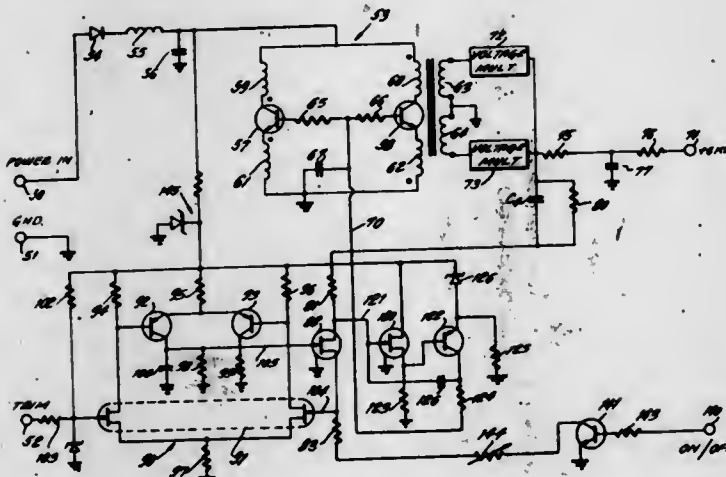
Filippo B. Galluppi, Mt. Vernon, N.Y., assignor to Venus Scientific Inc., Farmingdale, N.Y.

Filed May 28, 1969, Ser. No. 828,567

Int. Cl. H02p 13/22; H02m 3/22; H03k 3/281

U.S. Cl. 321-2

7 Claims



A high-voltage power supply has a controlled output oscillator operated from a low-voltage DC source. The output voltage of the oscillator is increased by a voltage multiplier. A series circuit comprising a high ohmic resistor, a transistor device and an adjustable low ohmic resistor is connected in parallel with the oscillator output, and the transistor impedance is varied to maintain a constant current in the parallel path. The voltage developed at the transistor for maintaining a constant current is then used to control the oscillator in order to maintain constant output voltage.

3,573,596 ELECTRONIC CONVERTER FOR USE IN THE VOLTAGE TRANSFORMATION AND REGULATION OF A UNI-DIRECTIONAL VOLTAGE

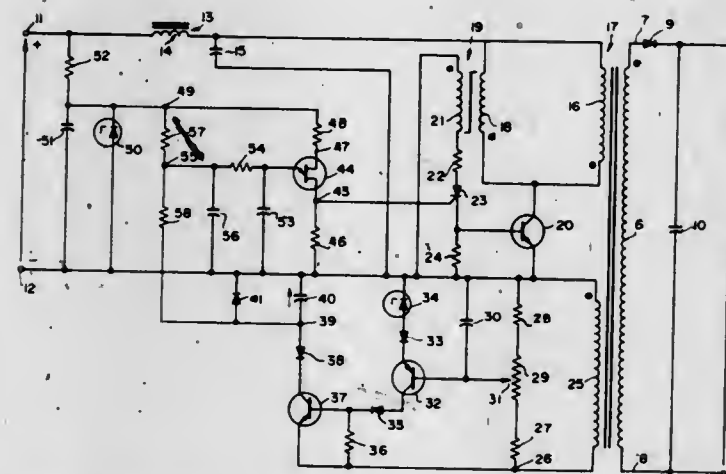
Zvi Kamil, Haifa, and Reuven Kaplan, Kiriat Haim, Israel, assignors to State of Israel, Ministry of Defence, Hakiriya, Tel Aviv, Israel

Filed June 19, 1969, Ser. No. 834,747

Int. Cl. H02m 3/22

U.S. Cl. 321-2

10 Claims



An electronic converter for use in the voltage transformation and regulation of a unidirectional voltage having a controlled relaxation oscillator to which is coupled a power monostable circuit so as to be triggered thereby, an energy storage and voltage transformation transformer being coupled to the monostable circuit, the transformer having an output winding coupled to a load and a sensing winding tightly coupled to the output winding so as to sense the output voltage level. The sensing winding has coupled

thereto a threshold detector which serves to transmit the excess energy stored in the transformer to a storage and filtering capacitor coupled to the detector via an amplifier which serves to switch the excess energy to the storage and filtering capacitor which is coupled to the relaxation oscillator so as to control its frequency and thereby maintain the output voltage at the required level.

3,573,597 HIGH CURRENT SWITCHING REGULATOR WITH OVERLAPPED OUTPUT CURRENT PULSES

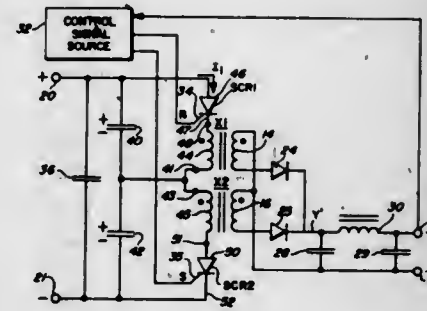
Luther L. Genuit, Scottsdale, and John R. Nowell, Phoenix, Ariz., assignors to General Electric Company

Filed Dec. 29, 1969, Ser. No. 888,273

Int. Cl. H02m 3/22

U.S. Cl. 321-2

11 Claims



A switching regulator circuit is disclosed for use with power supplies supplying a high DC current output. The circuit utilizes a plurality of controlled rectifiers and inductive reactors with sequential gating of the rectifiers at regular intervals for providing overlapped output current pulses from the reactors thereby delivering high output currents with relatively low RMS ripple currents in input and output filter capacitors, as well as relatively lower RMS current through the controlled rectifiers. The reduced RMS value of ripple currents permits the use of input and output filter capacitors and controlled rectifiers having lower ripple current ratings thereby improving the electrical efficiency by reducing resistive losses in the filter capacitors and facilitating a reduction in size and volume for power supplies having a given current rating.

3,573,598 OVERLOAD PROTECTED SWITCHING REGULATOR- CONVERTER

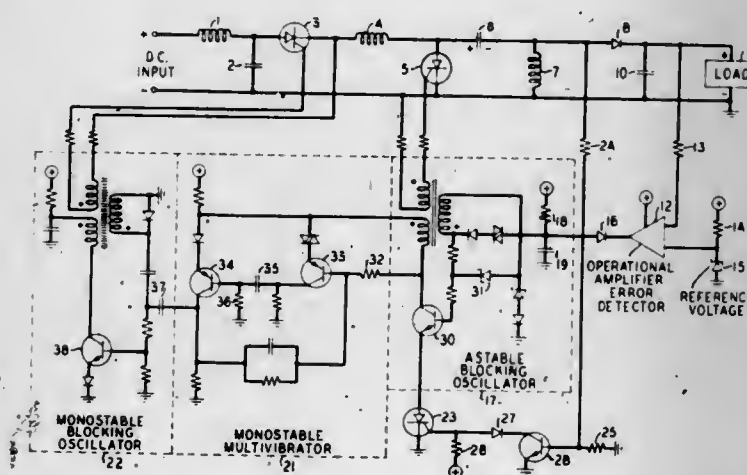
Patrick W. Clarke, Murray Hill, N.J., and Rudolph Scuderi, New York, N.Y., assignors to Bell Telephone Laboratories, Incorporated, Murray Hill, N.J.

Filed May 16, 1969, Ser. No. 825,195

Int. Cl. H02m 3/32; H02h 7/14; G05f 1/08

U.S. Cl. 321-2

8 Claims



A regulated converter wherein a current limiting inhibit circuit connected across the output inductor disables the switching control network until the energy stored in the

output inductor, as indicated by the polarity of the potential across the inductor, is dissipated. Overload protection is thus simply provided and RF voltage spikes are eliminated.

3,573,599 TWO-WIRE CURRENT TRANSMITTER WITH TRANSFORMER ISOLATION

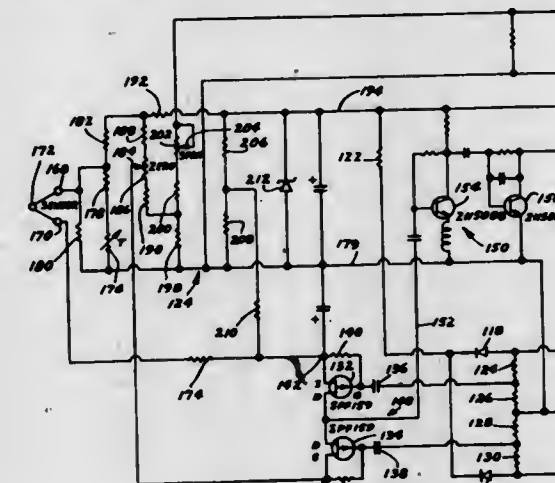
Robert C. Rose, Minneapolis, Minn., assignor to Rosemount Engineering Company, Eden Prairie, Minn.

Filed Oct. 27, 1969, Ser. No. 869,671

Int. Cl. H02m 3/28

U.S. Cl. 321-2

25 Claims



A transmitter controls the flow of DC load current through two wires in accordance with the magnitude of a DC voltage representative of a variable condition. Transformer coupling is used to isolate the load side from the sensing side. This permits a thermocouple to be employed, where the variable condition is temperature, and to be freely grounded without adversely affecting the output or load current. Special DC/AC and AC/DC circuitry is included.

3,573,600 COMBINATION THREE PHASE-ONE PHASE INVERTER

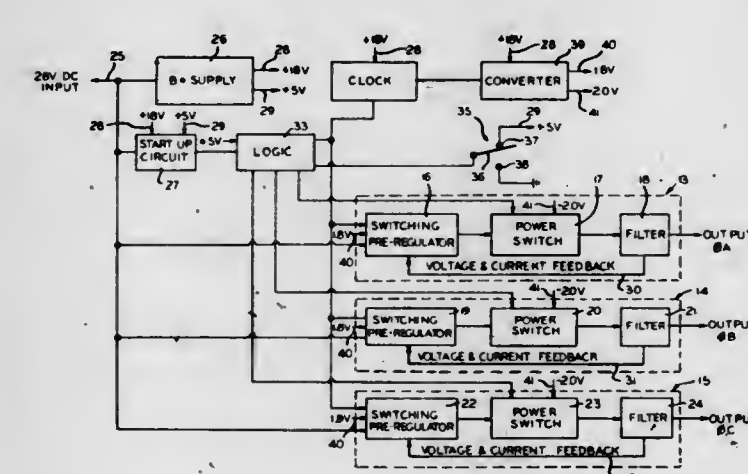
Thomas E. Carlisle, Addison, Ill., assignor to Vapor Corporation, Chicago, Ill.

Filed Aug. 8, 1969, Ser. No. 848,458

Int. Cl. H02m 5/14

U.S. Cl. 321-7

3 Claims



An inverter having drive change means for converting three phase operation to single phase operation where single phase power is supplied at the same rating as the rating for three phase power. A controlled drive means in a solid state static inverter for the power outputs supplies the outputs 120° out of phase for three phase operation or in phase for single phase operation.

3,573,601 TRANSFORMERLESS PULSE WIDTH MODULATED INVERTER FOR PROVIDING THREE PHASE VOLTAGE FOR A THREE WIRE LOAD

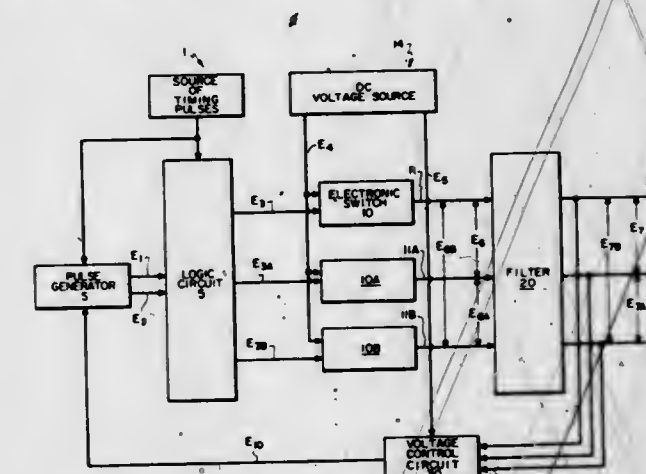
Albert H. Esser, Clifton, N.J., assignor to The Bendix Corporation

Filed Mar. 7, 1969, Ser. No. 805,308

Int. Cl. H02m 1/12, 7/52

U.S. Cl. 321-9

8 Claims



A direct current to three phase inverter in which each 90° segment of a sinusoidal voltage is divided into three 30° sections and only two pulse widths are required to approximate the area of the sinusoidal voltage. One pulse width is used during one 30° section, the second pulse width is used during another 30° section and the difference between the two pulse widths is used during a third 30° section. The two pulse widths are chosen so that the area under the pulses approximates the area under each 30° section of the sinusoidal voltage.

3,573,602 THREE-PHASE INVERTER

Arne Jensen, Nordborg, Denmark, assignor to Danfoss A/S, Nordborg, Denmark

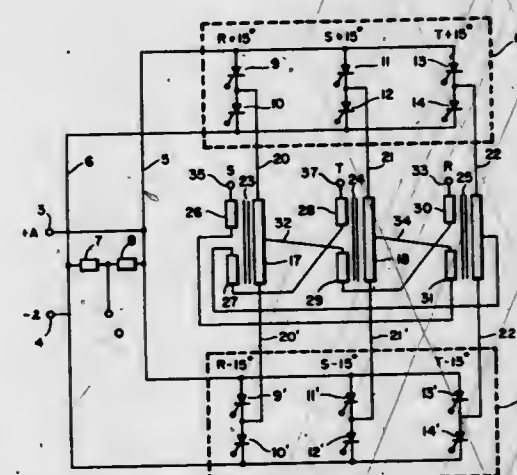
Filed June 16, 1969, Ser. No. 833,475

Claims priority, application Germany, June 19, 1968, P 17 63 530.2

Int. Cl. H02m 1/12

U.S. Cl. 321-9

13 Claims



The invention relates to a three-phase inverter producing a stepped voltage between each two output terminals which approximates the sinusoidal form. The apparatus includes two three-phase inverter systems of the type comprising pairs of parallel arranged controllable rectifiers and three transformers each having a primary winding and two secondary windings.

3,573,603

DEVICE IN CURRENT CONVERTERS

Jerker Andersson, Ludvika, Sweden, assignor to Allmanna Svenska Elektriska Aktiebolaget, Vasteras, Sweden

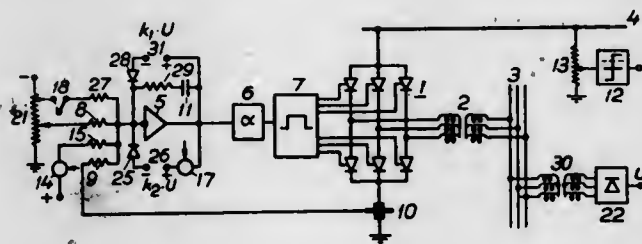
Filed Aug. 4, 1969, Ser. No. 847,013

Claims priority, application Sweden, Aug. 29, 1968, 11600/68

Int. Cl. H02m 1/18

U.S. Cl. 321-12

4 Claims



In a static converter which includes a delay angle control device, a control amplifier for controlling the delay angle control device, and an arrangement for blocking the converter. In order to provide for rapid starting of the converter a limiting member for limiting the delay angle of the converter so as to limit the direct voltage of the converter is controlled by the output signal of the blocking device over a switch delaying circuit. A transient order device is also connected to the input side of the control amplifier to increase the input signal of the amplifier and the transient order device is actuated by the blocking means for the DC transmission line connected to the converter. An under-voltage sensitive device actuated by the voltage in an AC network connected to the converter is connected in parallel to the blocking device, and the two parallel devices are connected to the limiting member and the transient order device by an OR gate.

3,573,604

RMS AC VOLTAGE REGULATOR

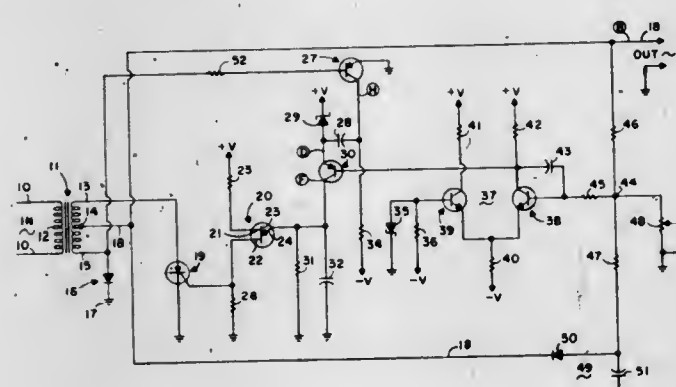
Michael W. Lundgreen, Cedar Rapids, Iowa, assignor to Collins Radio Company, Cedar Rapids, Iowa

Filed Jan. 5, 1970, Ser. No. 515

Int. Cl. H02m 1/08, H02m 7/20; H02p 13/26

U.S. Cl. 321-18

11 Claims



An RMS voltage regulator is realized in a minimal hardware circuitry by employing a unijunction switch to fire a silicon controlled rectifier element, the latter serving to convert a half-wave rectification of AC line voltage to a full-wave operation at intervals defined by RMS variation of the output from nominal. Peak and average values of the output are sensed, combined in ratio, and compared with a reference DC voltage to control the periodicity of SCR firing in a manner to cause average and peak output values to move oppositely, thus attaining a substantially constant output RMS value.

3,573,605

CLOSED LOOP FERRORESONANT REGULATOR

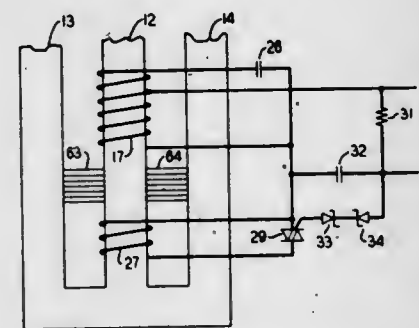
Harry P. Hart, Whippany, and Robert J. Kakalec, Madison, N.J., assignors to Bell Telephone Laboratories, Incorporated, Murray Hill, Berkeley Heights, N.J.

Continuation-in-part of application Ser. No. 763,882, Sept. 30, 1968, now abandoned. This application Sept. 8, 1969, Ser. No. 856,121

Int. Cl. G05f 1/46, 1/64

U.S. Cl. 323-56

14 Claims



The transformer core of a ferroresonant regulator includes a main core portion on which is wound the output winding, a control portion on which is wound a compound winding, and a saturating portion. The magnetic flux in the main core portion divides, part into the control portion and part into the saturating portion. The output voltage is controlled without saturation of the main core portion by a low current in the compound winding. An integrating circuit including an integrating capacitor is coupled to the output winding to develop a voltage proportional to the volt-time integral of the output voltage. A switch responsive to the integrating capacitor voltage causes current to flow in the compound winding. The current through the compound winding opposes saturation of the control core portion and precipitates saturation of the saturating core portion to limit the total flux swing in the main core portion and the half cyclic average of output voltage. The operation of the switch in conjunction with the saturation of the saturating core portion causes the ferrocapacitor to reverse its charge each half cycle, and ferroresonant regulation is maintained. The output voltage may be varied by varying the rate of charge of the integrating capacitor, and closed loop regulation may be achieved by adding a feedback network responsive to the load voltage for varying the charging rate.

3,573,606

CLOSED-LOOP FERRORESONANT VOLTAGE REGULATOR WHICH SIMULATES CORE SATURATION

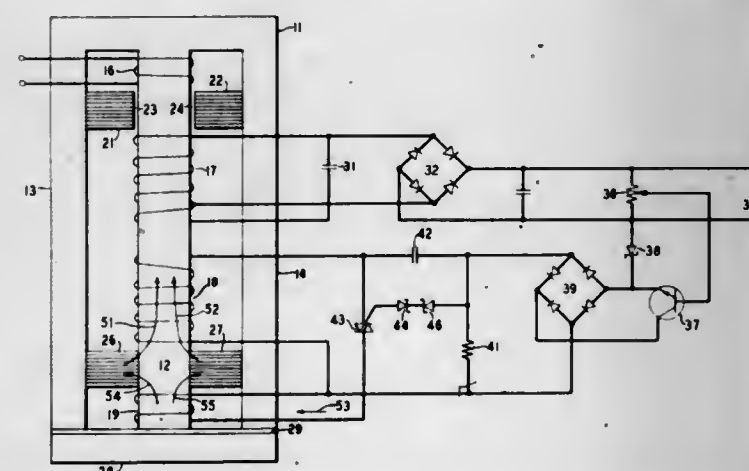
Harry P. Hart, Whippany, and Robert J. Kakalec, Madison, N.J., assignors to Bell Telephone Laboratories, Incorporated, Murray Hill, Berkeley Heights, N.J.

Filed Oct. 1, 1969, Ser. No. 862,786

Int. Cl. G05f 1/46, G05f 1/64

U.S. Cl. 323-60

7 Claims



In a ferroresonant voltage regulator of the type in which transformer core saturation is simulated by the switching of a separate inductor effectively across the ferrocapacitor in

response to the volt-time integral of output voltage, the separate inductor is incorporated into the main transformer as an "inductance" winding on the output or center leg of three core legs. Unwanted magnetic coupling between the inductance winding and the output winding is substantially eliminated by a magnetic shunt between the windings, and the inductance winding is wound in a direction to minimize the flux in the shunt. The inductance is optimized by the choice of thickness of a nonmagnetic spacer between the transformer core endpiece and the legs.

3,573,607

PROTON RESONANCE VOLUMETRIC FLOWMETER

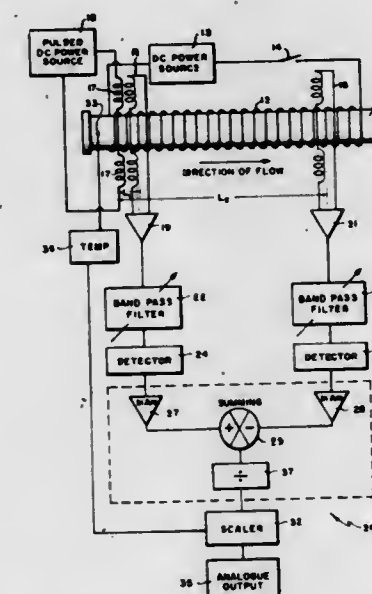
Henry K. Whitesel, 7 Melrob Court, Apt. 4, Annapolis, 21403 and John F. Scarzello, 11215 Oak Leaf Dr. Apt. 1714, Silver Spring, Md. 20901

Filed Aug. 29, 1968, Ser. No. 756,136

Int. Cl. G01n 27/00

U.S. Cl. 324-0.5

10 Claims



A flowmeter employing proton resonance for determining the rate of flow of a fluid through a pipe of nonmagnetic material. The relaxation of the perturbed magnetic moment is detected inductively by two pickup coils and the resulting signals are processed and combined electronically to give the desired measurement.

3,573,608

ENGINE ANALYZING APPARATUS WITH CATHODE RAY DISPLAY

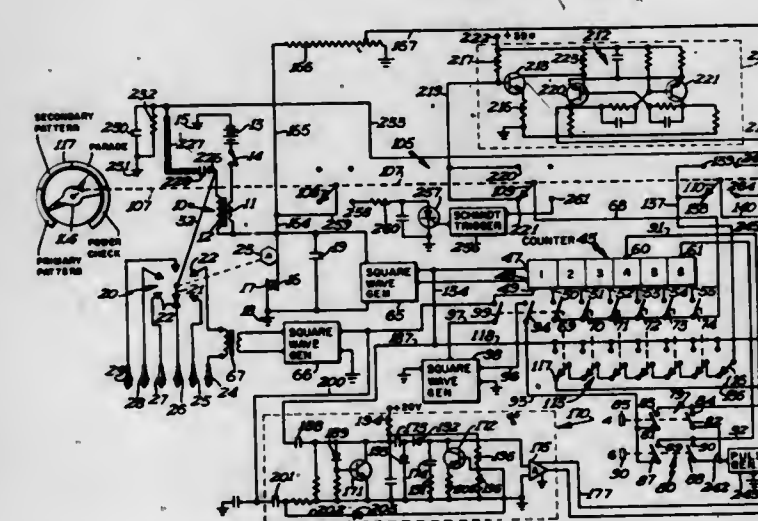
Joseph A. Marino, Hopkins, and Richard S. MacCrea, New Brighton, Minn., assignors to Marquette Corporation, Minneapolis, Minn.

Filed Oct. 15, 1968, Ser. No. 767,795

Int. Cl. G01m 15/00

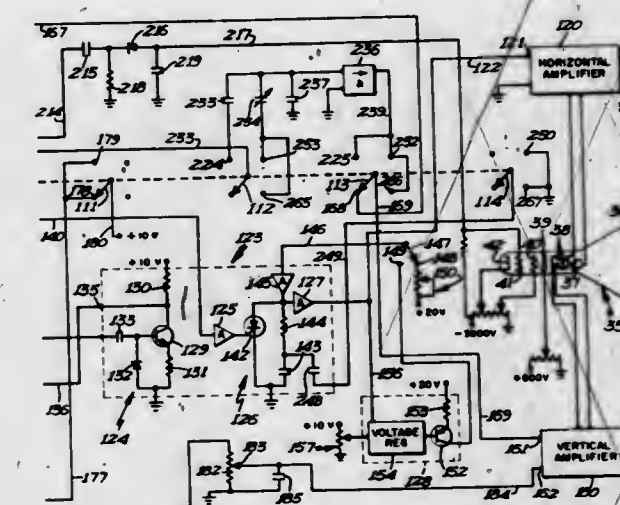
U.S. Cl. 324-15

11 Claims



Engine analyzing apparatus for an internal combustion engine in which a signal indicative of a condition of the

ignition system is superimposed upon a horizontal trace of a cathode ray and in which the horizontal trace is initiated at the time the distributor points close rather than when they open. There may be a plurality of horizontal traces, one for each cylinder, arranged to give a "faster" display or the



conditions associated with the various cylinders may be displayed in sequence in a "parade" display. Provision is made for displaying the condition of each cylinder by itself or displaying the conditions of any combination of cylinders either individually or in superimposed fashion.

3,573,609

DISTRIBUTOR ADVANCE TESTER WITH TACHOMETER

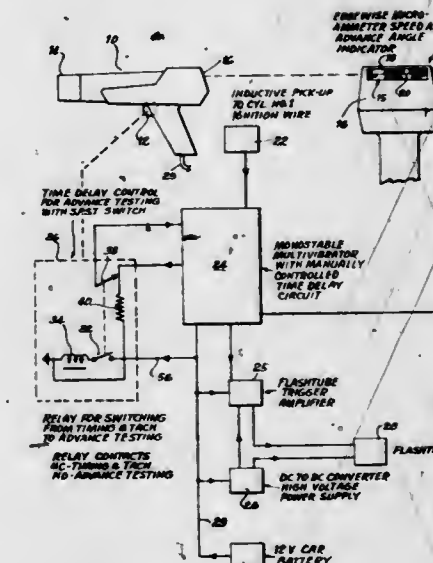
John L. Vaher, Chicago, Ill., assignor to American Gage & Machine Company, Chicago, Ill.

Filed Feb. 27, 1969, Ser. No. 802,815

Int. Cl. F02p 17/00

U.S. Cl. 324-17

4 Claims



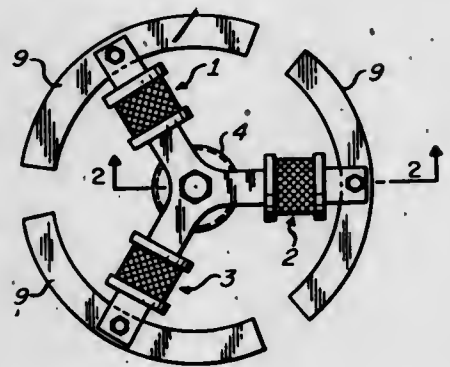
A hand held timing advance tester and tachometer construction for internal combustion engines which includes a source of stroboscopic light and an instrument displaying a first scale for measuring engine speed and a second scale for measuring engine advance. Each time the selected cylinder fires, a flash tube is energized. A time delay circuit will either trigger the flash tube energizing circuit immediately in response to each high voltage pulse applied at the input or will trigger it after a time delay, which is continuously and selectively variable by means of a manual control. The time delay circuit also applies a signal to the indicator, which provides a visual indication of the amount of delay provided by the time delay circuit.

3,573,610
EARTH'S FIELD-SENSITIVE MAGNETOMETER FOR USE IN COMPASS SYSTEMS HAVING GRADUALLY CONVERGING FLUX COLLECTORS AND BEING INSENSITIVE TO VARYING AMBIENT TEMPERATURE
 Donald J. Kesselring, Phoenix, Ariz., assignor to Sperry Rand Corporation

Filed Feb. 4, 1969, Ser. No. 796,349
 Int. Cl. G01r 33/02

U.S. Cl. 324-43

7 Claims



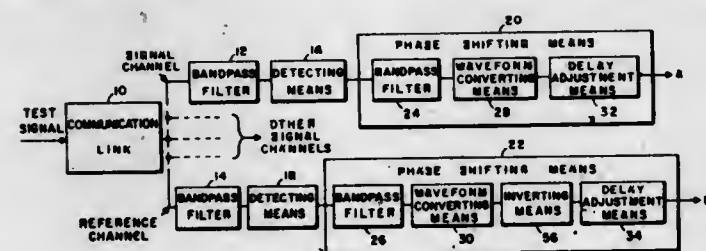
A magnetometer for sensing the horizontal component of the Earth's magnetic field in which the upper and lower radial leg inductors or core members of permeable magnetic material and the upper and lower arcuate collectors of permeable magnetic material associated with the outer peripheral ends of the legs are of substantially equal and uniform cross-sectional areas, the upper and lower collectors being arranged to contact the underside and upper side respectively of the leg inductors and to gradually and uniformly converge toward each other, contacting each other at their free ends; and the base member for supporting the sensitive element, which comprises the permeable core members and associated coils, and to which the sensitive element is securely and firmly fastened in precise position is constructed of a nonmagnetic, electrically insulating material, while the securing devices for holding the sensitive element and base together and for securing the collectors in predetermined position, the core members, and the base, are all formed of such materials that, while having the requisite physical and electrical properties, have temperature coefficients of expansion that closely approximate each other to thereby maintain the sensitive element in its initial precisely positioned condition under varying ambient temperature conditions, the resultant magnetometer arrangement being characterized in that extremely small errors occur in the magnetometer output such that the output of a compass system embodying the same will contain a maximum error of the order of about 12 minutes of arc as compared to prior art devices wherein errors of 38 minutes of arc and greater are ordinarily encountered under similar conditions.

3,573,611
SIMULTANEOUS DELAY MEASUREMENT BETWEEN SELECTED SIGNAL FREQUENCY CHANNELS AND REFERENCE FREQUENCY CHANNEL
 Gerald T. Bergemann; Ernest N. Dulaney, and Robert H. Pool, Marion, Iowa, assignors to Collins Radio Company, Dallas, Tex.

Filed Jan. 23, 1969, Ser. No. 793,529
 Int. Cl. G01r 27/00

U.S. Cl. 324-57

24 Claims



The present invention relates to means for simultaneously measuring differential envelope delay between selected signal

frequency channels and a reference frequency channel during transmission through a communications link. A test signal is applied to a bank of band-pass filters which separate the test signal into a reference frequency channel and a plurality of signal frequency channels. The signals of each channel are demodulated and passed to a phase shifting means which is adjustable to establish zero differential delay between the respective signal channel and the reference channel. Thereafter, the test signal is transmitted through the communications link and the output of the communications link is applied to the filter bank. A plurality of delay detecting means each measure differential delay between a respective signal channel and the reference channel and provide a delay signal to suitable indicating means.

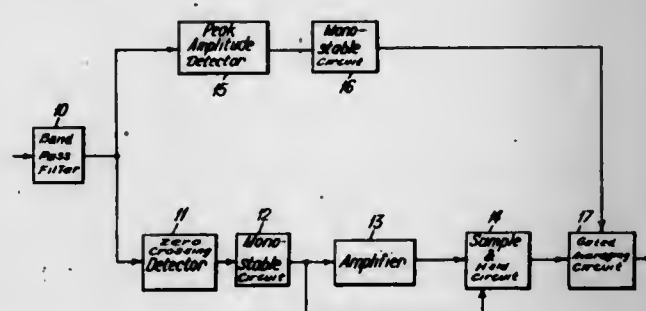
3,573,612
APPARATUS FOR ANALYZING COMPLEX WAVEFORMS CONTAINING PITCH SYNCHRONOUS INFORMATION
 Robert Walter Allister Scarr, Stansted, England, assignor to Standard Telephones and Cables Limited, London, England

Filed Oct. 25, 1968, Ser. No. 770,690
 Claims priority, application Great Britain, Nov. 16, 1967, 52,146/67

Int. Cl. G01r 23/16

U.S. Cl. 324-77

5 Claims



A complex waveform containing pitch synchronous information is applied in parallel to a peak detector and a zero crossing detector. A first monostable is activated by the output signal of the zero crossing detector to provide a first pulse of fixed duration. A sawtooth waveform is activated by the trailing edge of the first pulse. The sawtooth waveform will have an amplitude linearly proportional to time. The leading edge of the next sawtooth waveform will activate a sample and hold circuit to sample and store the sawtooth waveform. A second monostable is activated by the output signal of the peak detector to provide a second pulse of a duration less than the fixed duration. The second pulse switches on (gates) an averaging circuit which is coupled to average the output signal of the sample and hold circuit for the duration of the second pulse. This results in an output signal which is an average of the times between successive zero crossings of the complex waveform within the duration of the second pulse.

3,573,613
DEVICE FOR THE MEASUREMENT OF TWO FREQUENCIES SIMULTANEOUSLY PRESENT IN A COMPLEX WAVE
 Jacques Oswald, Versailles, France, assignor to C.I.T.-Compagnie Industrielle Des Telecommunications, Paris, France

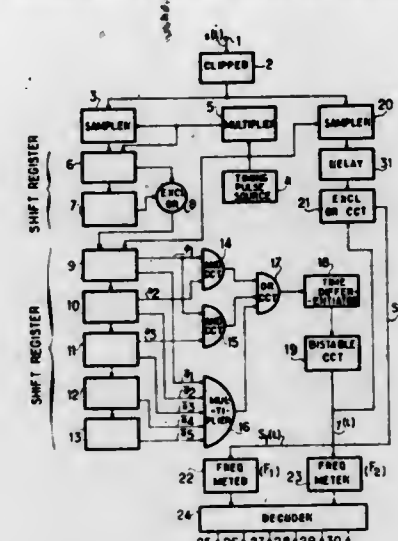
Filed Dec. 3, 1968, Ser. No. 780,850
 Claims priority, application France, Dec. 22, 1967, 133,644
 Int. Cl. G01r 23/16

U.S. Cl. 324-77

3 Claims

A new process and devices for recognizing, in a received complex signal formed of two superimposed sinusoidal or quasi-sinusoidal waves of different frequencies each having a value selected from a predetermined range of values, the individual values assumed during a given time period by the said two frequencies, and to display these values in numerical

form on an indicator, and or to direct a signal to one or the other of a number of addresses according to the received order of 50 times the period of the input pulse. The amplifier output pulse is applied to a second storage capacitor and discharge resistor circuit to produce an output pulse that has



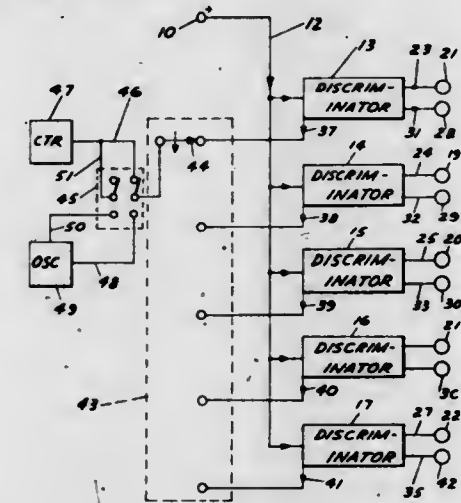
two-frequency combination. The process involves signal sampling and logical treatment of the samples.

3,573,614
TRANSIENT VOLTAGE INDICATING, MEASURING, AND COUNTING CIRCUIT
 Donald R. Wittbrodt, Warren, Mich., assignor to the United States of America as represented by the Secretary of the Army

Filed Apr. 26, 1968, Ser. No. 724,350
 Int. Cl. G01r 19/00, 19/14

U.S. Cl. 324-102

15 Claims



A circuit for indicating, measuring, and counting transient voltage signal characteristics present in a power supply system including means for sensing the transient signal of a predetermined magnitude, control circuit means for generating first, second and third output signals in response to the transient signals, indicator means responsive to said first and second signals for indicating the presence of said transient signal, means responsive to said third signal for measuring the width of said transient and means responsive to said third signal for measuring the duration of said transient voltage signals.

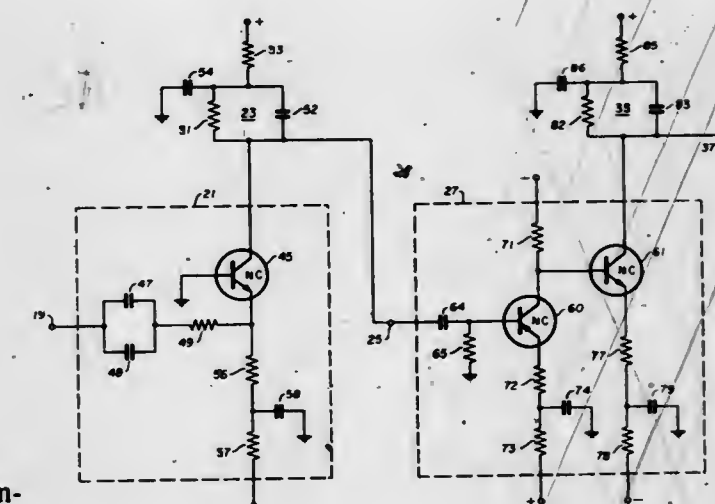
3,573,615
SYSTEM FOR MEASURING A PULSE CHARGE
 Dan I. Porat, and Robert L. Anderson, Palo Alto, Calif., assignors to the United States of America as represented by the United States Atomic Energy Commission

Filed Sept. 14, 1967, Ser. No. 668,303
 Int. Cl. G01r 1/00, 19/00

U.S. Cl. 324-111

5 Claims

A circuit operable in response to a low-power nanosecond input pulse for developing an output pulse having a peak voltage proportional to the total charge of the input pulse. The input pulse is applied through a normally conducting transistor to a storage capacitor, which is discharged through a resistor to drive an amplifier over a decay period on the

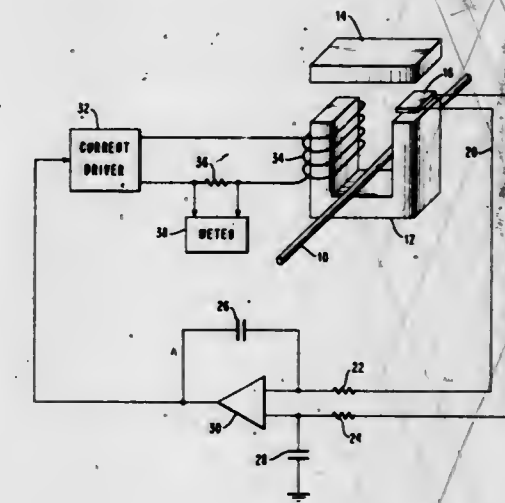


a rise time equal to the input pulse period plus the decay period of the first storage circuit and a fall time equal to the decay period of the second storage circuit.

3,573,616
CURRENT MEASURING SYSTEM HAVING A FEEDBACK PATH INCLUDING A COMBINED HIGH GAIN AMPLIFIER AND INTEGRATOR
 Hooshang Kahen, Forest Hills, N.Y., assignor to International Business Machines Corporation, Armonk, N.Y.

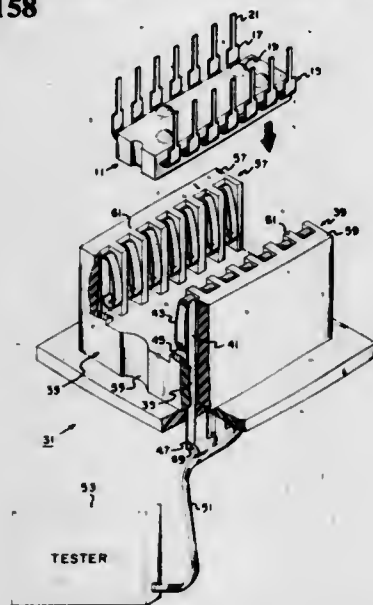
U.S. Cl. 324-117

1 Claim



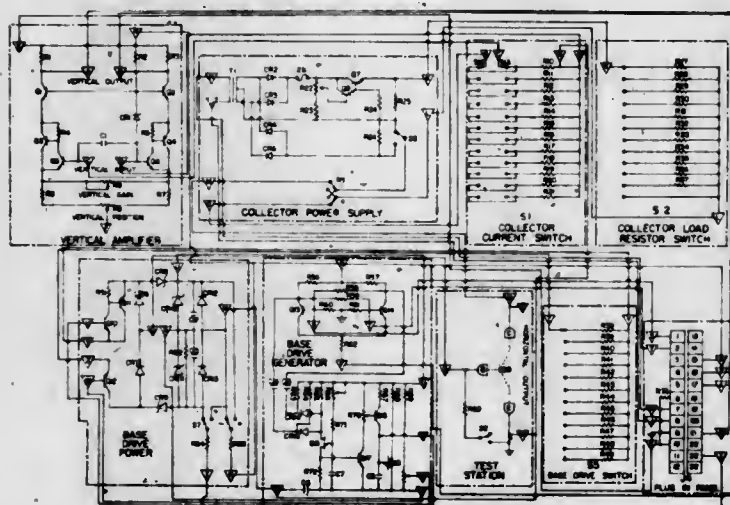
A current-measuring system is provided for measuring over a wide range the flow of direct or alternating current in a conductor. The system includes a magnetic core arranged in two pieces which is clamped around the conductor for producing a magnetic field in response to current flow in the conductor. A magnetic to electric transducer, such as a Hall effect generator, is placed in a gap in the core and the output leads of the Hall effect device is connected to an operational amplifier that integrates the Hall effect signal. The operational amplifier is connected to a current driver, the output of which is connected to windings on the core. The current driver produces an output current in response to the amplifier output signal to oppose the field produced by the core. A resistor is connected between the current driver and the coil and the output voltage across the resistor is a measure of the current in the conductor.

3,573,617
METHOD AND APPARATUS FOR TESTING PACKAGED INTEGRATED CIRCUITS
 Ellwood A. Randolph, Winter Garden, Fla., and Paul A. Baump, Reseda, Calif., assignors to AAI Corporation, Cockeysville, Md.
 Filed Oct. 27, 1967, Ser. No. 678,560
 Int. Cl. G01r 31/22; G01b 7/16
 U.S. Cl. 324-158



A test apparatus is disclosed for testing a dual in-line packaged integrated circuit having dual rows of leads protruding laterally in respectively opposite directions from the package and bent normal thereto in a common direction. The test apparatus has a test head with dual rows of oppositely paired interfacing spaced contacts which are resiliently laterally inwardly biased towards each other and adapted to be engaged and laterally outwardly displaced from their quiescent position by the leads of the dual in-line packaged integrated circuit inserted between the dual rows of oppositely paired contacts. Each of the contacts is connected to a tester adapted to apply selected signals to selected contacts and sense the result thereof to determine the electrical condition of the integrated circuit inserted on the test head. To protect the dual rows of contacts, a cover with separators extending between each of the adjacent contacts is provided on the test socket which also serves to guide a packaged integrated circuit into engagement with the contacts on the test head. In addition, finger-accommodating recesses are provided to facilitate the insertion of a packaged integrated circuit onto the test head.

3,573,618
SOLID-STATE CHARACTERISTIC CURVE TRACER ATTACHMENT FOR OSCILLOSCOPES
 William G. Dilley, 4168 N. 425 West, Ogden, Utah 84404
 Filed May 27, 1968, Ser. No. 732,393
 Int. Cl. G01r 31/22, 13/20
 U.S. Cl. 324-158

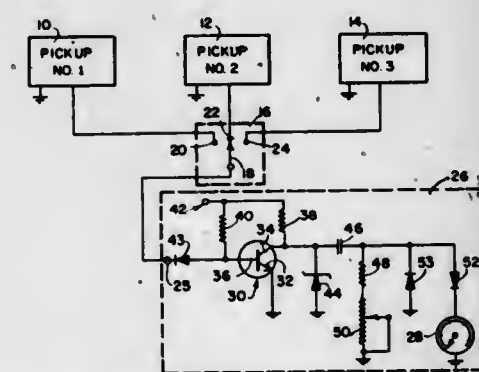


An all solid-state attachment unit for various types of standard oscilloscopes to enable them to perform the

functions of a characteristic curve tracer for solid-state devices. The attachment may be modular, constructed as a plug-in unit for certain types of standard oscilloscopes so as to make use of available power, electronic capability, and display contained within such oscilloscopes, or it may be similar but containing a plug-in facility for a power supply auxiliary to those contained within the oscilloscope, so it can be used with certain other types of standard oscilloscopes not providing all the required power supplies, or it may be a completely separate console adapted for plug-in connection with a power source and with the vertical and horizontal amplifier inputs, respectively, of various other types of standard oscilloscopes that are not constructed to receive plug-in units. When connected with a standard oscilloscope, the attachment unit of the invention in effect constitutes an integral part of the oscilloscope and provides augmented capability therefor, so as to make possible the visual display of characteristics of solid-state devices undergoing test.

3,573,619
ELECTROMAGNETIC SYSTEM FOR SCALING FREQUENCIES WHICH ARE PROPORTIONAL TO THE ANGULAR VELOCITIES OF SELECTED ROTATING SHAFTS
 Martin Ivec, Joliet, Ill., assignor to Motorola, Inc., Franklin Park, Ill.
 Filed Feb. 10, 1969, Ser. No. 797,747
 Int. Cl. G01p 3/48

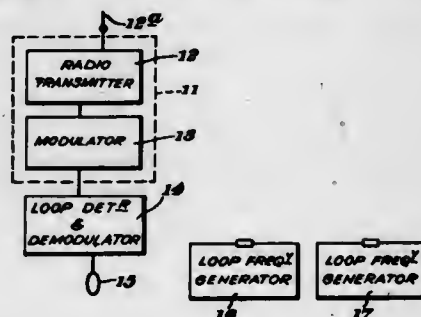
U.S. Cl. 324-174



Electromagnetic system for providing a reading proportional to the instantaneous angular velocity of any one of a plurality of rotating shafts. Each of the shafts rotates a disc which has a predetermined number of apertures distributed thereabout to consequently vary the reluctance in a magnetic flux path thereby generating an alternating voltage having a frequency proportional to both the number of apertures and the angular velocity of the shaft. The number of apertures in each disc can be selected to provide frequency scaling. Any one of the alternating voltages can be coupled to an indicating device which develops the reading.

3,573,620
SECURITY SYSTEM WITH INDUCTIVE TO RF COMMUNICATIONS LINKS
 John Raymond Ashley, Kyama Frome Road, Radstock, Bath, Somerset, and Colin Grahame Douglas, Stoneybroke Watergates, Colerne, Wiltshire, England
 Filed May 31, 1968, Ser. No. 733,693
 Claims priority, application Great Britain, May 31, 1967, 25199/67

Int. Cl. H04b 1/50; G08b 25/00
 U.S. Cl. 325-53

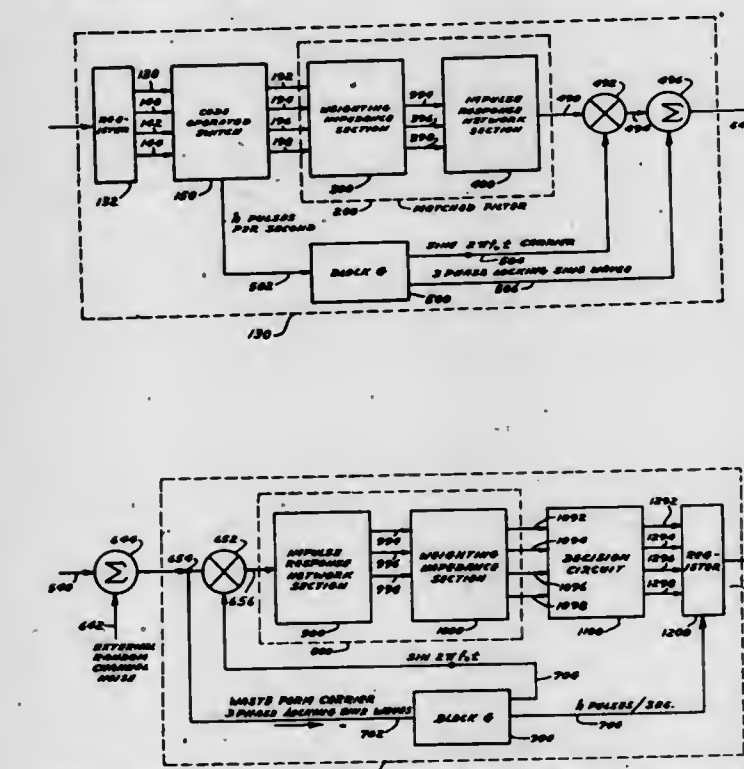


In a location system a radio transmitter carried by a security guard or watchman includes a loop aerial and a loop

demodulator, and loop carrier frequency generators each generating a loop carrier frequency modulated by a different modulating frequency are installed at different points to be visited by the guard, so that as the guard reaches each point the loop carrier is demodulated and the modulating frequency is used to modulate the transmitter carrier. The transmitted signals are picked up at a distant monitoring point, demodulated, and the modulating frequency is identified with the point visited.

3,573,621
DATA FORMAT CONVERSION AND TRANSMISSION SYSTEM
 Meredith S. Ulstad, Minneapolis, Minn., assignor to Control Data Corporation, Minneapolis, Minn.
 Filed Mar. 6, 1967, Ser. No. 621,050
 Int. Cl. H04b 1/66

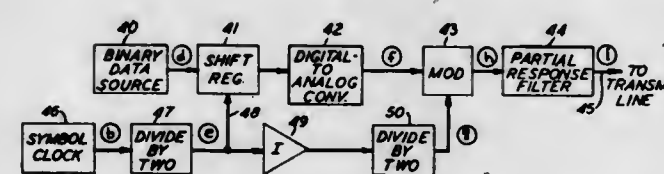
U.S. Cl. 325-38



The present invention relates to a data format conversion and transmission system which connects digital information from binary input receiving means in multibit quantities by encoding this information into selected analog waveforms, transmitting the waveforms to a receiver and decoding those analog waveforms in the receiver to reproduce the converted digital information.

3,573,622
PARTIAL-RESPONSE SIGNAL SAMPLING FOR HALF-SPEED DATA TRANSMISSION
 Louis N. Holzman, Lincroft, and John R. Sheehan, Red Bank, N.J., assignors to Bell Telephone Laboratories, Incorporated, Murray Hill, Berkeley Heights, N.J.
 Filed Apr. 23, 1968, Ser. No. 723,456
 Int. Cl. H04b 1/66

U.S. Cl. 325-38

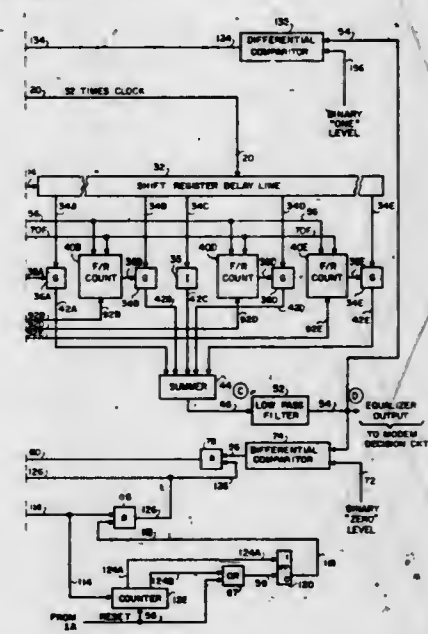


Theoretically maximum equivalent binary data transmission rates are obtainable in partial-response channels; i.e., bandlimited channels with filter shaping which disperses the impulse response to individual data inputs over more than one signaling interval. However, the resultant multilevel line signals occasionally give rise to system start-up problems. These problems are eliminated by initial sampling of alternate data input pairs for one particular partial-response format to produce a two-level line signal which preserves transitions occurring at the basic signaling interval.

The same technique provides means for signaling at half the design rate without changing channel filters or the basic clock rate.

3,573,623
TRANSVERSAL FILTER
 John Michael Bannon, Baltimore, and Joseph Carroll Kvarda, Silver Spring, Md., assignors to The Bunker-Ramo Corporation, Stamford, Conn.
 Filed Oct. 24, 1968, Ser. No. 770,169
 Int. Cl. H04b 3/04

U.S. Cl. 325-42

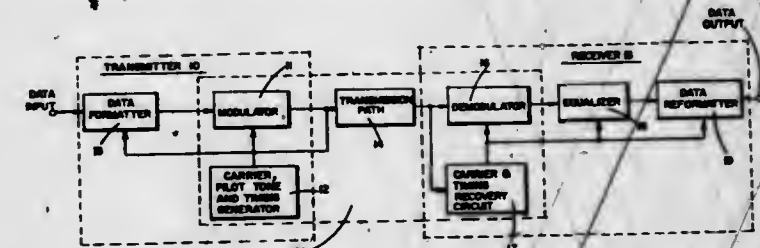


A transversal filter which includes means for encoding an analogue value of an applied synchronous input signal into a binary pulse train. The binary pulse train is applied through a delay line which has taps spaced at discrete intervals. The outputs from at least selected ones of the taps are utilized to gate predetermined values stored in associated storage means to the inputs of a summing means. The output from the summing means is utilized as the transversal filter output.

The transversal filter described above may be utilized as part of an automatic line equalizer by initially applying known test signals to the filter and utilizing the error signals generated by comparing the outputs from the filter against a desired reference to adjust the predetermined values stored in the storage means. When these values have been set such as to provide an output which differs from the reference within predetermined limits, the equalizer is ready to operate on information inputs.

3,573,624
IMPULSE RESPONSE CORRECTION SYSTEM
 Jon P. Hartmann, Santa Ana, and Gerald N. Yutzi, San Clemente, Calif., assignors to North American Rockwell Corporation
 Filed June 24, 1968, Ser. No. 739,555
 Int. Cl. H04b 1/10, 1/12

U.S. Cl. 325-42



A system for determining the impulse response of a transmission channel over which a plurality of consecutive data symbols are transmitted and for compensating the received signals therefor, in which the calculated values of the previously received data symbols modified by the estimated value of the impulse response are subtracted from each signal received over the transmission channel to derive

a corrected signal from which the value of the most recently received data symbol may be calculated. The calculated value of the most recently received data symbol modified by the estimated value of the impulse response is then subtracted from the corrected signal to derive a residual which is a function of the difference between the actual and estimated values of the impulse response. The estimated value of the impulse response is then selectively modified so as to minimize the residual.

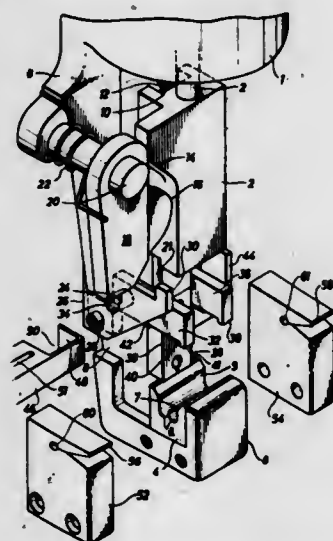
3,573,625

APPARATUS FOR TRIMMING AND SPLICING WIRES
Colin David Kindell, Bushey, and Terence Robert Raynor, London, England, assignors to AMP Incorporated, Harrisburg, Pa.

Continuation-in-part of application Ser. No. 772,987, Nov. 4, 1968, now Patent No. 3,539,707. This application Nov. 15, 1968, Ser. No. 776,199
Int. Cl. H01r 43/04

U.S. Cl. 29—203

10 Claims



A crimping tool carries out both trimming and splicing operations in a single stroke so that the wires are trimmed between the ends of a connector; the wires do not sag and the trimmed wire ends lie within the connector. The tool has a pair of wire-trimming blades mounted for rotation on either side of the path of a movable die, which blades cooperate with trimming edges extending along such path. Each wire is oriented so as to be within the path of movement of one trimming blade and outside the path of movement of the other.

3,573,626

AUTOMATIC RADIO FREQUENCY PULSE MEASUREMENT SYSTEM

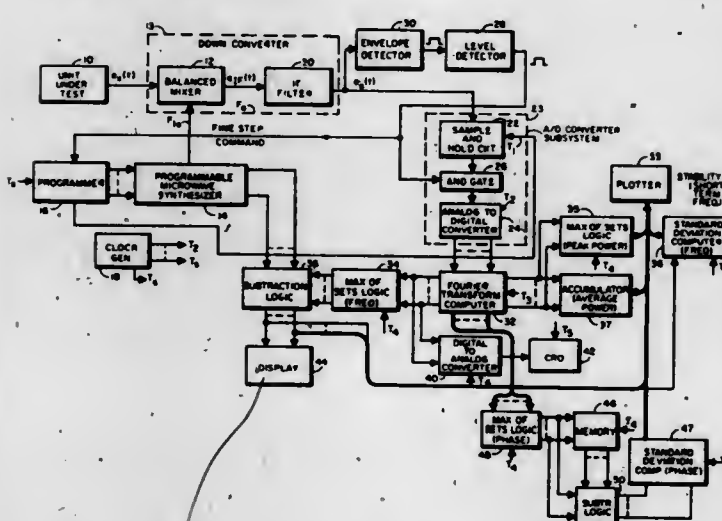
Robert J. Ertman, Monroe County, N.Y., assignor to General Dynamics Corporation

Filed Mar. 29, 1968, Ser. No. 717,124

Int. Cl. H04b 1/16

U.S. Cl. 325—67

12 Claims



The microwave pulse signal measurement system described herein automatically derives the Fourier power spectrum of a

microwave pulse train from a unit under test and simultaneously measures the frequency at which the microwave pulses have their maximum power. The input microwave pulses are mixed with local signals generated in a microwave synthesizer which is controlled by a programmer to change the frequencies of the local signals in discrete steps. The intermediate frequency burst obtained from the mixer upon occurrence of each microwave pulse is sampled and translated into digital information. A Fourier transform computer obtains from this digital information, output information as to the power density of different frequency components across the spectrum of the microwave pulse. This digital information can be displayed on an oscilloscope or a plotter to provide a visual presentation of the power spectrum of the microwave pulse. The computer outputs are also translated into digital outputs corresponding to the Fourier component having maximum power. These digital outputs may be subtracted from digital outputs obtained from the synthesizer which represent the frequency of the local signals to produce a number directly indicating the frequency at which the microwave pulse has its maximum power.

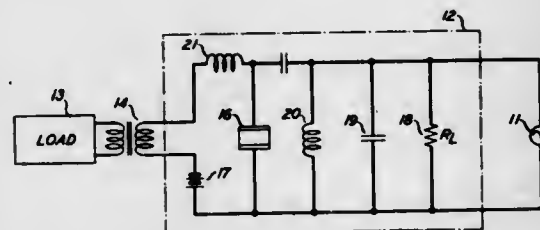
3,573,627

APPARATUS INCLUDING LSA OSCILLATOR CIRCUITS
John A. Copeland, III, Gillette, N.J., assignor to Bell Telephone Laboratories, Incorporated, Murray Hill, Berkeley Heights, N.J.

Continuation-in-part of application Ser. No. 647,419, June 20, 1967, now Patent No. 3,508,169. This application Jan. 25, 1968, Ser. No. 700,403
Int. Cl. H03b 19/14

U.S. Cl. 325—105

3 Claims



In one embodiment, an input signal is applied to an LSA oscillator circuit where it mixes with the oscillatory frequency f_{LSA} to give a difference frequency f_d that is amplified. In another embodiment, a signal of frequency f_d applied to an LSA oscillator modulates the oscillatory output frequency. In another embodiment, an input frequency f_d mixes with the oscillatory frequency to give an amplified sum frequency. In all the above embodiments, f_d conforms to the relationship

$$f_d \leq \frac{f_{LSA}}{Q}$$

where Q is the quality factor of the oscillator resonance circuit. A simple Doppler-effect radar is disclosed in which an LSA oscillator provides an output transmitted frequency and also detects and amplifies input frequency shifts indicative of the velocity of a target. The amplitude modulation phenomenon can be employed in a microphone in which a diaphragm is used to vary the quality factor Q of the LSA oscillator resonant circuit.

3,573,628

ANTENNA FOR MINIATURE RADIO RECEIVER INCLUDING PORTIONS OF RECEIVER HOUSING AND CHASSIS

Joseph F. Cramer, Jr., Downers Grove, Ill., and Thomas M. Yackish, Hammond, Ind., assignors to Motorola, Inc., Franklin Park, Ill.

Filed July 15, 1968, Ser. No. 744,837

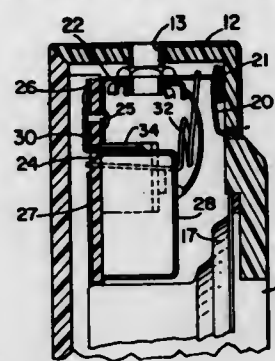
Int. Cl. H04b 1/18, 1/08

U.S. Cl. 325—361

10 Claims

Antenna for radio receiver of the capacitively loaded vertical ground plane type wherein an active vertical portion is formed by parts of the receiver and is connected to a conductive escutcheon to form a capacitive loading structure

for the vertical antenna. The lower end of the vertical antenna is connected to shield cans and grounded conductors on the chassis which form an effective ground plane. The receiver making extensive use of signal voltages already present in the circuit and decreasing the overall drain on the receiver supply battery.



3,573,631

OSCILLATOR CIRCUIT WITH SERIES RESONANT COUPLING TO MIXER

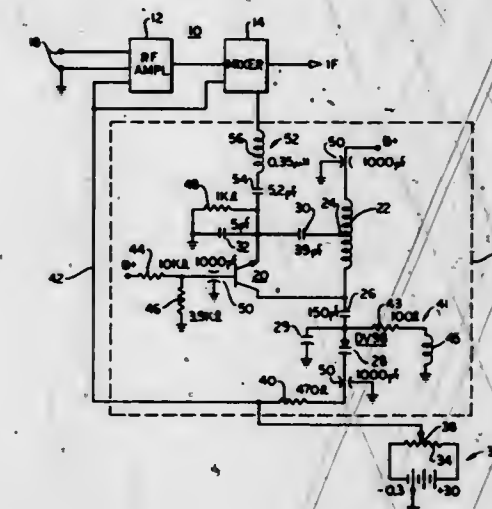
David J. Carlson, Indianapolis, Ind., assignor to RCA Corporation

Filed Aug. 30, 1968, Ser. No. 756,620

Int. Cl. H03j 3/18; H04b 1/28; H04n 5/44

U.S. Cl. 325—439

9 Claims



signal from the top of the vertical antenna is coupled through a matching circuit to the base of a transistor. A jack for connecting an external antenna is connected between the ground plane and a point on the vertical antenna.

3,573,629

TRANSFORMER POWER SUPPLY FOR REMOTE CONTROLLED RECEIVERS WITH PROVISION FOR FAST WARM-UP

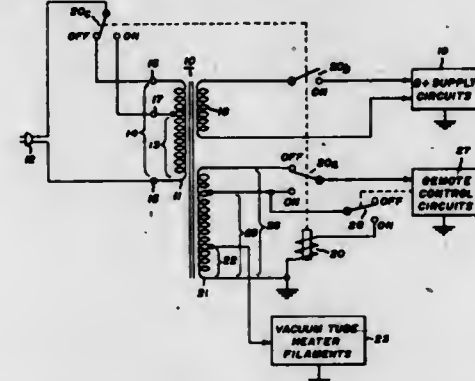
Donald F. Buell, Baldwinsville, N.Y., assignor to General Electric Company

Filed Apr. 1, 1969, Ser. No. 811,756

Int. Cl. H04b 1/06

U.S. Cl. 325—390

5 Claims



A transformer power supply for a remote controlled receiver provides reduced filament power in the OFF condition by increasing the primary to secondary turns ratio for the filament supply winding when the receiver is turned OFF. At the same time, the number of turns in the secondary winding supplying the remote control circuits is increased in the same ratio as the increase in the primary turns so as to maintain a constant operating voltage to the remote control circuits, thus enabling the receiver to be turned ON remotely. Switching of the turns in the various windings is provided by a relay connected across the low-voltage portion of the remote control supply winding.

3,573,630

TIME VARIABLE ALERT TONE CIRCUIT FOR PERSONAL RADIO PAGING SYSTEMS

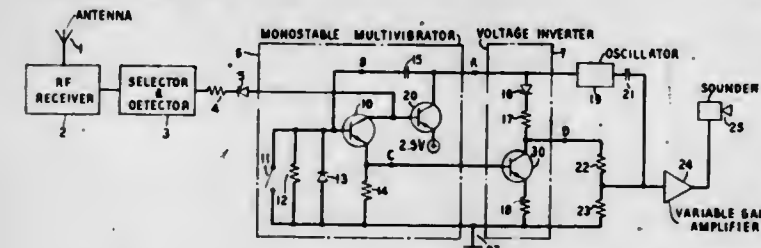
Steven M. Baer, Red Bank, N.J., assignor to Bell Telephone Laboratories, Incorporated, Murray Hill, Berkeley Heights, N.J.

Filed Sept. 30, 1968, Ser. No. 763,780

Int. Cl. G08b 3/10

U.S. Cl. 325—392

3 Claims



The present invention concerns a method for varying over a period of time the alert tone in a personal radio-paging amplitude.

COMBINED PARAMETRIC AMPLIFIER AND MIXER ARRANGEMENT

Hans Kuhn, 7530 Pforzheim, Oberer Wingertweg 90, Germany, assignor to International Standard Electric Corporation, New York, N.Y.

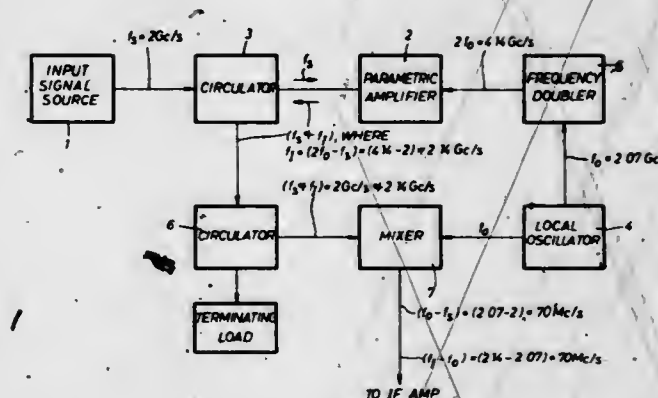
Filed Nov. 9, 1967, Ser. No. 681,621

Claims priority, application Germany, Nov. 25, 1966, ST26212

Int. Cl. H04b 1/26

U.S. Cl. 325—445

7 Claims



An arrangement comprising a parametric amplifier, a mixer, an oscillator coupled to the mixer, a frequency doubler coupled to the oscillator to provide a pump frequency for the amplifier, and a source of input signals coupled to the amplifier wherein the idler frequency and amplified input signals are combined with the oscillator signals in the mixer to produce two sideband signals of the same frequency that are combined resulting in a single sideband signal output of the mixer having increased amplitude.

3,573,633

TONE BURST TO FREQUENCY GENERATOR

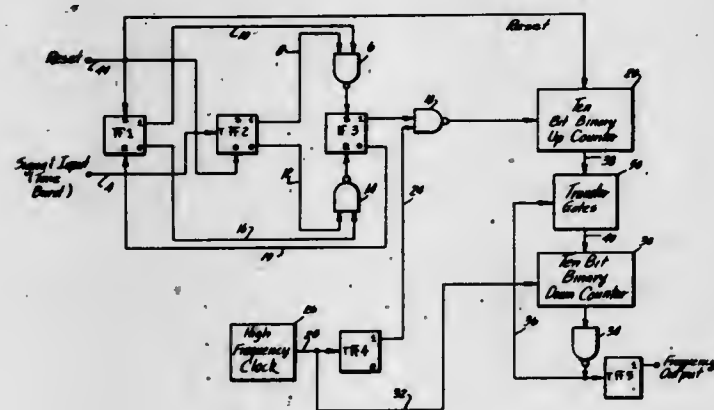
Michael T. Marrero, Casselberry, Fla., assignor to the United States of America as represented by the Secretary of the Navy

Filed May 26, 1969, Ser. No. 827,595

Int. Cl. H03k 23/00

U.S. Cl. 328-30

10 Claims



A flip-flop chain having feedback connections is arranged to measure one period of the carrier frequency of a tone burst signal. The output of the flip-flop chain gates a submultiple of a clock frequency into a count-up counter during the measured period. A countdown counter is arranged to count at clock frequency. Each time the countdown counter counts through zero, the count stored in the count-up counter is read out nondestructively into the countdown counter which simultaneously sends an output signal to a flip-flop. The divided and shaped output from the flip-flop is a continuous measure of the tone burst carrier frequency.

3,573,634

TIMING OF REGENERATOR AND RECEIVER APPARATUS FOR AN UNRESTRICTED DIGITAL COMMUNICATION SIGNAL

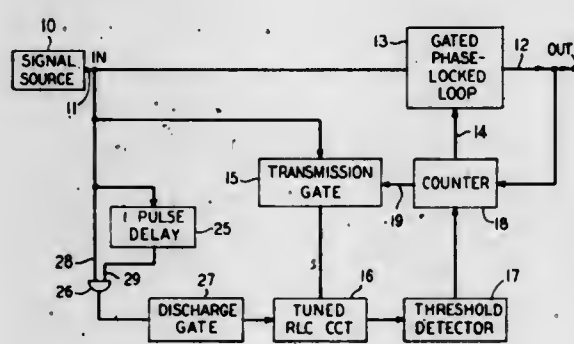
Todd L. Rachel, Elmira, N.Y., assignor to Bell Telephone Laboratories, Incorporated, Murray Hill, Berkeley Heights, N.J.

Filed Sept. 4, 1968, Ser. No. 757,314

Int. Cl. H03k 5/00

U.S. Cl. 328-63

5 Claims



A dedicated burst of timing pulses is multiplexed in each frame of an unrestricted digital signal to supply timing information to receiver and regenerator circuits in a time division communication system. When the burst appears in the received signal the output of a tuned RLC circuit builds up to a threshold level. A threshold detector then triggers a time control circuit, which in one embodiment of the invention is a counter circuit and in another embodiment of the invention is a pair of monostable multivibrator circuits, to gate the digital signal to a timing recovery circuit for the duration of the burst.

3,573,635

PULSE TRANSFER SYSTEM

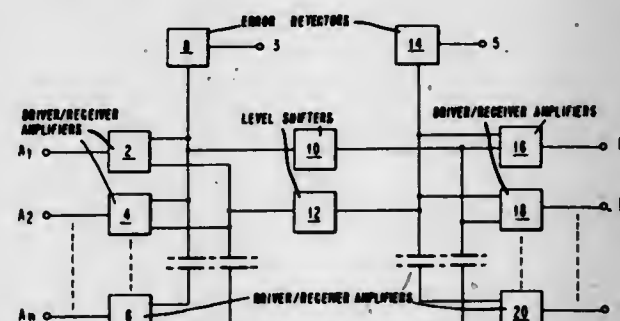
Donald J. Da Costa, Wappingers Falls, N.Y., assignor to International Business Machines Corporation, Armonk, N.Y.

Filed Nov. 18, 1968, Ser. No. 776,647

Int. Cl. H03k 17/00

U.S. Cl. 328-103

5 Claims



Two groups of terminals are interconnected by circuitry which transfers a pulse from any one terminal of the first group to all terminals of the second group and vice versa. Each terminal is connected to a common transfer system through an individual amplifier circuit which permits simultaneous bidirectional pulse transfers. The amplifiers are arranged to inhibit transfers of signals from one terminal of a group to the remaining terminals of the same group.

3,573,636

MULTIPLICATIVE PROCESSING PHASE DETECTOR

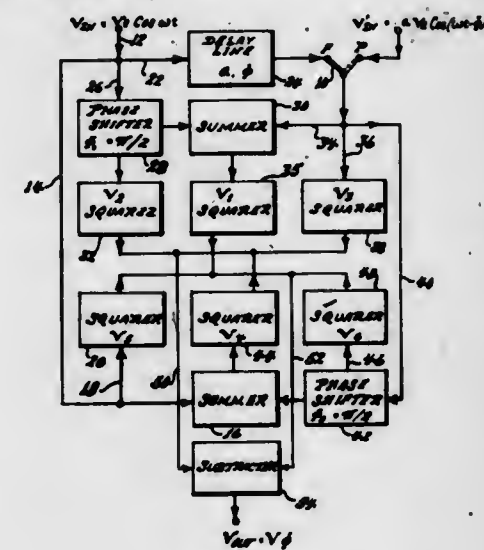
Uve H. W. Lammers, Watertown, Mass., assignor to the United States of America as represented by the Secretary of the Air Force

Filed Jan. 14, 1969, Ser. No. 790,955

Int. Cl. H03d 3/00

U.S. Cl. 329-110

2 Claims



A nonintegrating frequency or phase detector utilizing a plurality of square law detectors in a circuit having sinusoidal input signals and generating a DC output signal as a function of the phase angle difference between the input signals.

3,573,637

TIMING SYSTEM WITH OUTPUT REPRESENTING PREDETERMINED AND CONSTANT PHASE DISPLACEMENT FROM VARIABLE FREQUENCY INPUT

Jerald T. Stebbins, San Diego, Calif., assignor to Stromberg Datagraphix, Inc., San Diego, Calif.

Filed July 22, 1969, Ser. No. 843,402

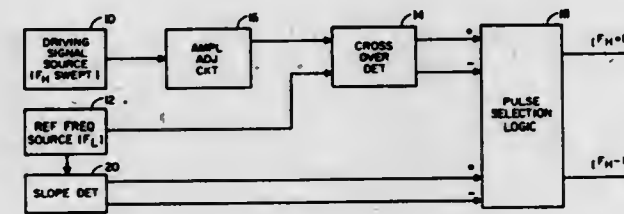
Int. Cl. H03k 5/20

U.S. Cl. 328-114

16 Claims

Systems are described for generating timing pulses having frequencies which follow a driving signal such that the difference between the frequency of the timing pulses and the driving signal remains constant even with variations in

the driving signal frequency. A sinusoidal driving signal and a triangular waveform having a frequency equal to the desired difference between the input driving signal and the output pulse train are compared so as to provide outputs corresponding to the crossovers therebetween. Pulse



selection logic which is enabled in accordance with the slope of the triangular waveform provides the output pulses which may have output frequencies equal either to the sum of the input and the triangular wave frequency or the difference therebetween.

3,573,638

BIPOLAR THRESHOLD DETECTOR

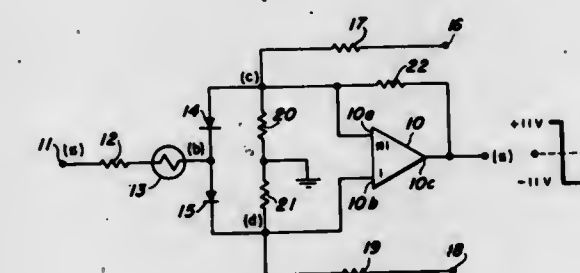
Henry L. Cox, Jr., Annapolis, and Carl O. Buhlman, Columbia, Md., assignors to the United States of America as represented by the Secretary of the Navy

Filed Aug. 15, 1969, Ser. No. 850,501

Int. Cl. H03k 5/20

U.S. Cl. 328-115

10 Claims



A pair of diodes steer signals into a bias network to block bipolar input signals having magnitudes within a preset range, and, to pass positive signal excursions exceeding the preset range, to one input of an operational amplifier, and, to direct negative signal excursions less than the bipolar range to another input of an operational amplifier. A quiescent positive output signal, representing a quiescent state when input signals are within the preset range is present at the amplifier output so long as the bipolar input signal stays within the preset range. When bipolar excursions exceed or are less than the preset range, the operational amplifier produces a negative output signal. A feedback loop connects the amplifier output to one of its inputs to ensure snap-action level detection by means of a regenerative feedback.

3,573,639

RATEMETER WITH AUTOMATIC DEAD-TIME CORRECTION

Arthur J. Metz, Portland, Oreg., and Robert H. Howard, Hickory Hills, Ill., assignors to the United States of America as represented by the United States Atomic Energy Commission

Filed Dec. 4, 1969, Ser. No. 882,247

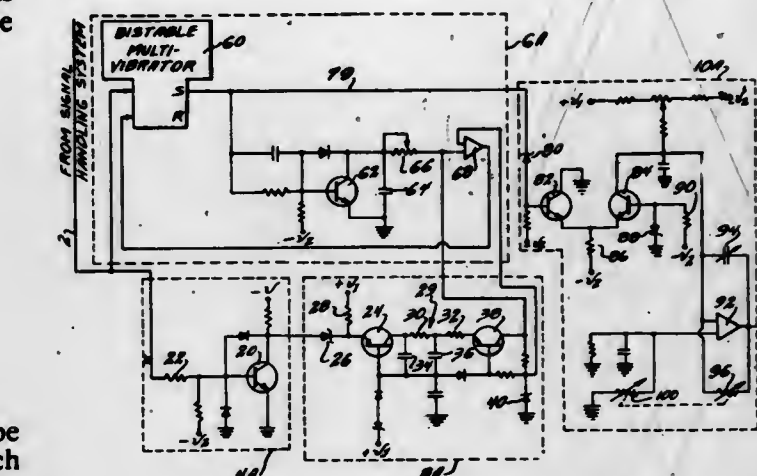
Int. Cl. H03k 5/00, 21/00

U.S. Cl. 328-127

5 Claims

A pulse rate meter receiving from a signal handling system having a variable dead time during a time T a train of random pulses having varying pulse widths includes a first circuit for producing an output signal whose amplitude is proportional to the ratio of the summed time intervals between pulses in the train of random pulses and the time T , a second circuit for producing, responsive to each random pulse, an output pulse whose width is inversely proportional to the output

signal of the first circuit, and a third circuit for integrating the output pulses of the second circuit to produce a rate



meter output which is representative of the true pulse rate input to the signal handling system.

3,573,640

PHASE COMPENSATION CIRCUIT

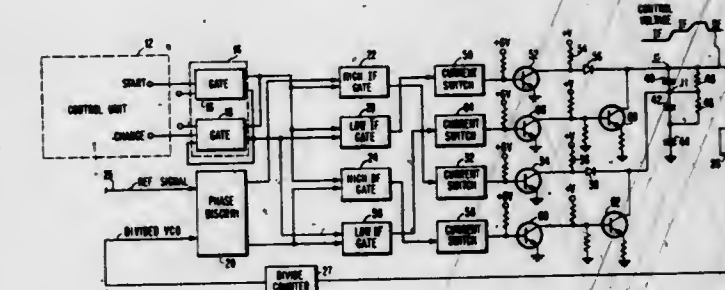
Carl P. Hollstein, Jr., Gerald H. Kiltz, and Frank J. Sordello, San Jose, Calif., assignors to International Business Machines Corporation, Armonk, N.Y.

Filed Aug. 23, 1968, Ser. No. 754,883

Int. Cl. H03b 3/04, G05f 3/00

U.S. Cl. 328-155

2 Claims



A phase compensation circuit incorporates series capacitors shunted by resistance means, with the signal channeled through the circuit so that there is virtually no loss of DC gain.

3,573,641

ELECTRONIC FILTER

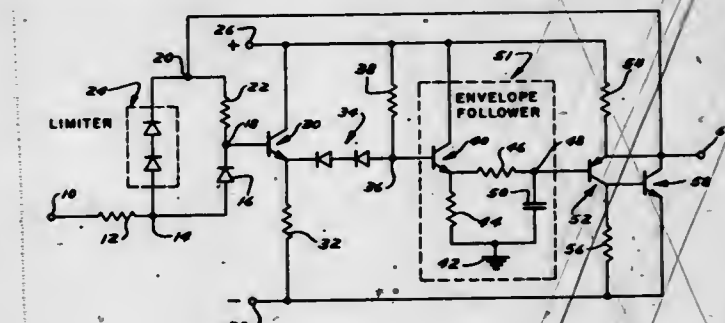
George E. Zenk, Minneapolis, Minn., assignor to Control Data Corporation, Minneapolis, Minn.

Filed Mar. 27, 1967, Ser. No. 626,177

Int. Cl. H03b 15/00

U.S. Cl. 328-165

6 Claims



A circuit for scanning celestial space and discerning the presence of bodies in a varying amplitude noise background is disclosed. Signal inputs provided by the sensor are compared to a signal indicative of the noise background envelope to eliminate the effect of the noise. A circuit for deriving the noise background envelope is also disclosed.

ERRATUM

For Class 329—110 see:
Patent No. 3,573,636

3,573,642

BAND-LIMITED FM DETECTOR

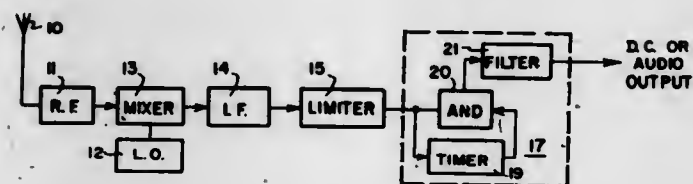
Thomas M. Yackish, Hammond, Ind., assignor to Motorola, Inc., Franklin Park, Ill.

Filed Mar. 10, 1969, Ser. No. 805,712

Int. Cl. H03d 3/00

U.S. Cl. 329—110

6 Claims



The output IF signal of an FM receiver is coupled to an AND gate and also used to actuate a timer. The timer output is coupled to a second input of the AND gate and the initial output of the timer enables the AND gate for a fixed predetermined time period. The initial portion of the IF signal disables the AND gate while the terminal portion of each cycle of the IF signal enables the AND gate. The AND gate puts out a signal consisting of a series of pulses which are filtered or integrated to develop an output signal, which is a linear function of the frequency over the band of the FM detector.

3,573,643

FREQUENCY DISCRIMINATOR CIRCUIT INCLUDING PIEZOELECTRIC RESONATOR PROVIDING COUPLED RESONANT CIRCUIT

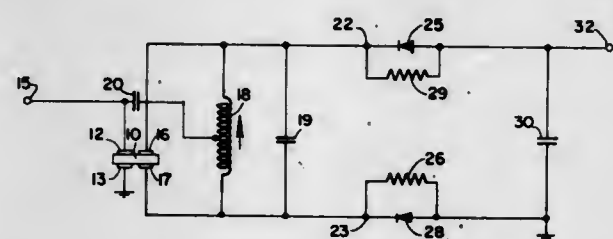
Corwin E. Livenick, Hickory Hills, Ill., assignor to Motorola, Inc., Franklin Park, Ill.

Filed Dec. 15, 1969, Ser. No. 885,122

Int. Cl. H03d 3/26, 3/16

U.S. Cl. 329—117

8 Claims



Frequency discriminator including piezoelectric element with first set of plates forming input tuned circuit and second pair of plates connected in a second tuned circuit coupled through the piezoelectric element to the first tuned circuit. The second tuned circuit includes an adjustable inductance for tuning to resonance at the center frequency of the frequency-modulated signal. The input signal is applied to the second tuned circuit and combined with opposite phases of the signal coupled through the piezoelectric element. A pair of rectifiers couple the second tuned circuit to a load across which the modulation signal is developed.

3,573,644

DC STABILIZED WIDE BAND AMPLIFIER

Eddie A. Evel, Colorado Springs, Colo., assignor to Hewlett-Packard Company, Palo Alto, Calif.

Filed Mar. 20, 1969, Ser. No. 808,777

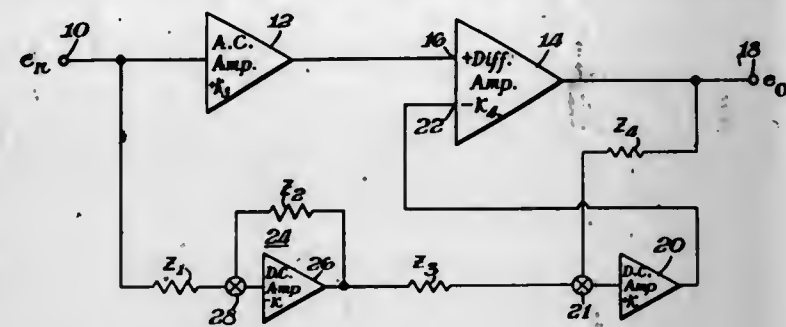
Int. Cl. H03f 1/02

U.S. Cl. 330—9

2 Claims

A wideband stabilized wide band amplifier is constructed to have two signal paths, one designed for optimum high-frequency performance and the other designed for optimum

low frequency and DC performance. The signals in the two paths are combined in a differential amplifier and the output



fed back to the DC signal path in such a manner that any DC signal drift in the AC signal path is reduced.

3,573,645

PHASE SPLITTING AMPLIFIER

Carl Franklin Wheatley, Jr., Somerset, N.J., assignor to RCA Corporation

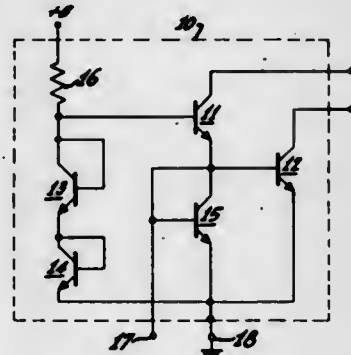
Filed June 30, 1969, Ser. No. 837,382

Claims priority, application Great Britain, Sept. 27, 1968, 46152/68

Int. Cl. H03f 3/26

U.S. Cl. 330—15

10 Claims



An integrated circuit phase splitter is direct-current coupled to a load circuit. The phase splitter includes a pair of transistors connected respectively in common emitter and base configurations. A signal input circuit is coupled to the emitter electrode of the common base transistor and to the base electrode of the common emitter transistor. Biasing means, including a pair of forward biased diodes, are provided in the base circuit of the common base transistor for establishing the quiescent current of that transistor as a function of the diode current. Another diode which is connected in series with the common base transistor is also connected between the input electrodes of the common emitter transistor to establish the common emitter transistor current equal to that of the common base transistor.

3,573,646

HIGH STABILITY EMITTER FOLLOWER

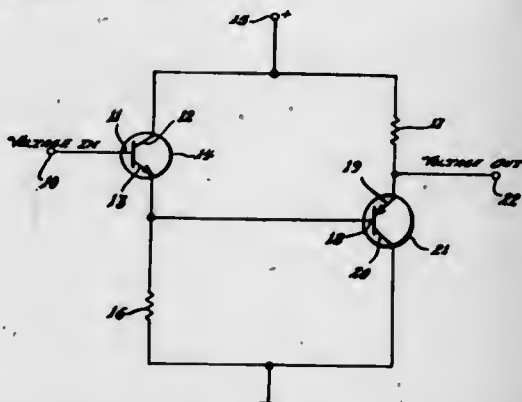
Pieter De Wit, Baltimore, Md., assignor to the United States of America as represented by the Secretary of the Air Force

Filed July 17, 1969, Ser. No. 842,530

Int. Cl. H03f 3/18

U.S. Cl. 330—17

5 Claims



An emitter follower apparatus having a low impedance output which is independent of temperature by cancelling the

voltage drifts due to base-emitter diode changes in two cascaded emitter followers.

3,573,647

ELECTRICAL IMPEDANCE CONVERTING NETWORKS

Andreas Antoniou, Hounslow, England, assignor to Her Majesty's Postmaster General, London, England

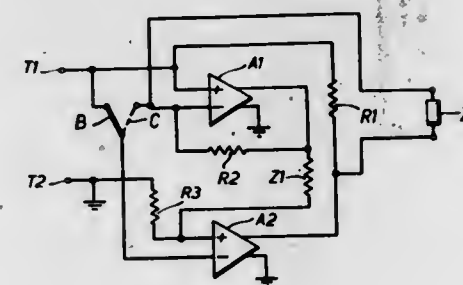
Filed Feb. 7, 1969, Ser. No. 797,564

Claims priority, application Great Britain, Feb. 9, 1968, Oct. 22, 1968, 6533/68; 50113/68

Int. Cl. H03f 1/00, 15/00

U.S. Cl. 330—69

10 Claims



This specification describes networks having gyrator properties. Each network comprises two differential amplifiers, and four resistors (conveniently equal) connected in positive and negative feedback paths about the amplifiers. The feedback connections are such that the networks are unconditionally stable. When a network is capacitively terminated its input port impedance is inductive. If in each of a group of capacitively terminated networks one of the feedback resistors is replaced by one of a group of input ports of a network of resistors the input ports of the gyrator networks simulate corresponding input ports of a network of inductors topologically and proportionally the same as the resistor network.

3,573,648

HIGH POWER AUDIO AMPLIFIER HAVING FEEDBACK PROVIDED BY A WINDING CO-FILAR WITH AN OUTPUT TRANSFORMER PRIMARY WINDING

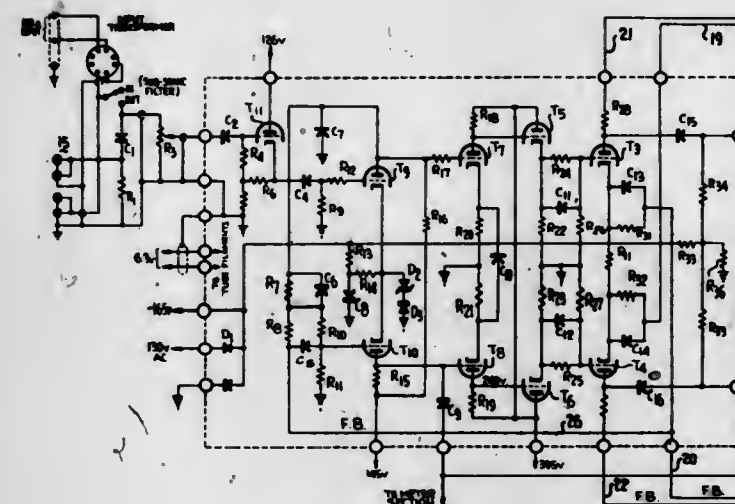
Miljub R. Nestorovic, Endwell, N.Y., assignor to McIntosh Laboratory, Inc., Binghamton, N.Y.

Filed Feb. 17, 1969, Ser. No. 799,867

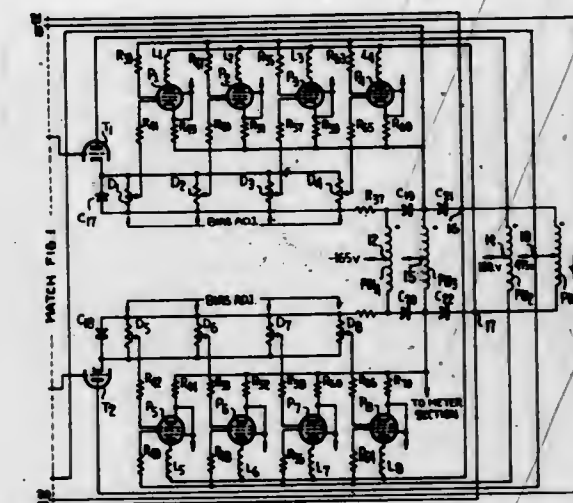
Int. Cl. H03f 1/36, 3/28

U.S. Cl. 330—82

14 Claims



A high-power audio amplifier employing both cathode and anode load unity coupled cofilarly wound transformer



output windings and have the same number of turns. Individual tube bias controls are employed for all output tubes.

3,573,649

FREQUENCY-LOCK CIRCUIT

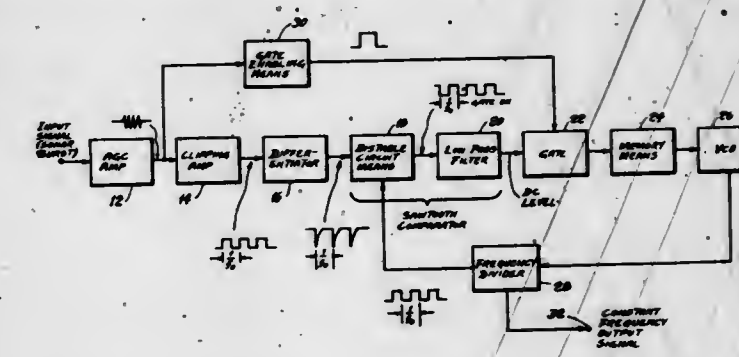
Gerald W. West, Seattle, Wash., assignor to the United States of America as represented by the Secretary of the Navy

Filed Jan. 8, 1969, Ser. No. 789,728

Int. Cl. H03b 3/04

U.S. Cl. 331—14

5 Claims



A circuit for locking the frequency of an oscillator to that of a received signal. The latter is amplified, clipped and differentiated before being fed to a phase-lock loop comprising, in series, a phase comparator, low-pass filter, gating means, memory means and a voltage-controlled oscillator (VCO). The output of the VCO is fed back through a frequency divider to the phase comparator. The comparator produces a symmetrical output when the circuit input and output frequencies are equal and an unsymmetrical output when the frequencies differ. The unsymmetrical output provides a DC level when filtered, which is used to control the VCO frequency to bring it back to the input frequency after frequency division. The output of the frequency divider is also the output of the frequency-lock circuit.

3,573,650

AUTOMATIC FREQUENCY CONTROLLED OSCILLATORS

Ugo Maltese, Genoa, Italy, assignor to The Marconi Company Limited, London, England

Filed Apr. 7, 1969, Ser. No. 814,136

Claims priority, application Italy, Apr. 11, 1968, 51261-A

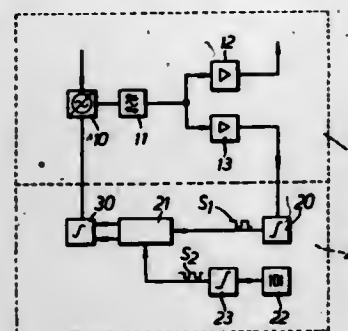
Int. Cl. H03b 3/04

U.S. Cl. 331—27

8 Claims

Automatic frequency control means for oscillator arrangement of modulatable frequency wherein signals from the oscillator, and signals from a reference source are compared in a comparator which produces signals dependent on the frequency difference of the oscillator and the

reference at one or other of two outputs, in dependence upon the sense of said difference. The signals from the



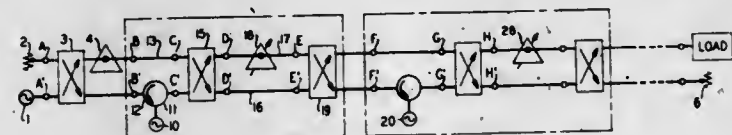
comparator drive a circuit which produces a frequency controlling signal which is fed to the oscillator.

3,573,651

LOCKED OSCILLATOR ARRANGEMENT
Rudolf S. Engelbrecht, Bernardsville, N.J., assignor to Bell Telephone Laboratories Incorporated, Murray Hill, N.J.
Filed Dec. 11, 1968, Ser. No. 783,056
Int. Cl. H03b 7/06

U.S. Cl. 331-56

8 Claims



A locked oscillator system is composed of a series array of modules each containing a unit oscillator in parallel with a bypass conductor and coupling means including a particularly adjusted phase shifter. Adjustment of the phase shifter in each module establishes the proportion of power that is directed to the unit oscillator device rather than to the bypass conductor of the next module. By appropriate adjustment of the phase shifters, equal synchronizing power is applied to each unit oscillator, and the remainder of the output power is applied directly to the load.

3,573,652

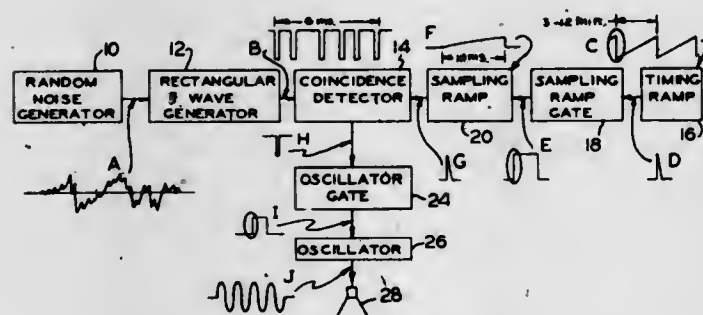
RANDOM INTERVAL TIMER

Thomas H. Charters, 6855 S.W. Raleighwood Way, Portland, Oreg. 97225

Filed Mar. 7, 1969, Ser. No. 805,339
Int. Cl. H03b 29/00

U.S. Cl. 331-78

13 Claims



Apparatus according to the present invention produces an output at random time intervals following a Poisson distribution. A first pulse generator means, comprising first and second time delay circuits, produces a first periodic pulse having a period on the order of minutes. A second pulse generator means provides a second repetitive pulse having a predetermined average period which is much less than the period of the first pulse, with the exact time of occurrence of the second pulse being modulated by a random noise signal. A coincidence detector indicates time coincidence between the first and second pulses and causes

an audible output to be produced. The duty factor of the second pulse predetermines the chance for coincidence.

3,573,653

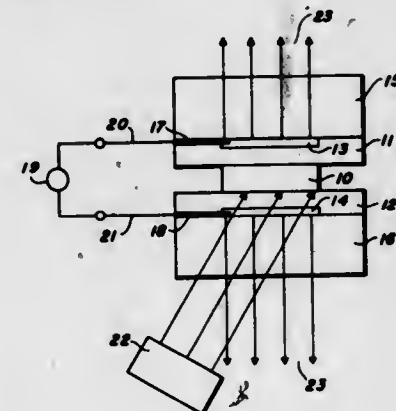
CONTINUOUSLY TUNABLE THIN FILM LASER EMPLOYING THE ELECTRIC FIELD EFFECT
Vern N. Smiley, San Diego, Calif., assignor to the United States of America as represented by the Secretary of the Navy

Filed July 18, 1969, Ser. No. 842,915

Int. Cl. H01s 3/10

U.S. Cl. 331-94.5

7 Claims



A selectively tunable thin film laser comprises a source of excitation energy and a thin film of laser material positioned to intercept the excitation energy. Conductive means are positioned on either side of the laser material and insulated therefrom; a source of selectively variable electrical potential is connected to the conductive means to generate a variable electric field therebetween so as to tunably change the wavelength of the laser output.

3,573,654

NARROW BAND TUNABLE LASER OSCILLATOR AMPLIFIER

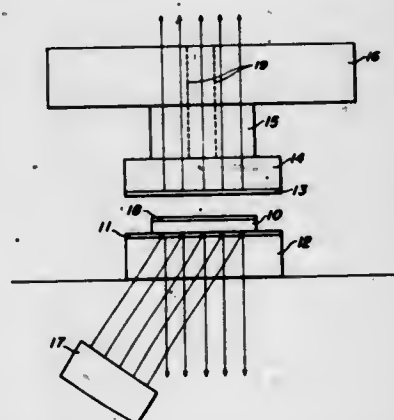
Vern N. Smiley, San Diego, Calif., assignor to the United States of America as represented by the Secretary of the Navy

Filed July 18, 1969, Ser. No. 842,939

Int. Cl. H01s 3/10

U.S. Cl. 331-94.5

10 Claims



A thin film of laser material is supported in the path of excitation energy capable of raising the laser material to lasing action. First and second reflective coatings are disposed on either side of the thin film of laser material and at least one of the coatings has a free surface which is adaptable to be displaced relative to the other reflective coating. A means is provided for displacing one of the reflective coatings, thereby changing the optical path length of the laser cavity which is formed by the laser material and the reflective coatings and producing a commensurate change in the wavelength of emitted laser energy; thus, the laser assembly is selectively tunable over a relatively narrow band of wavelengths.

3,573,655

COMBUSTION LASER

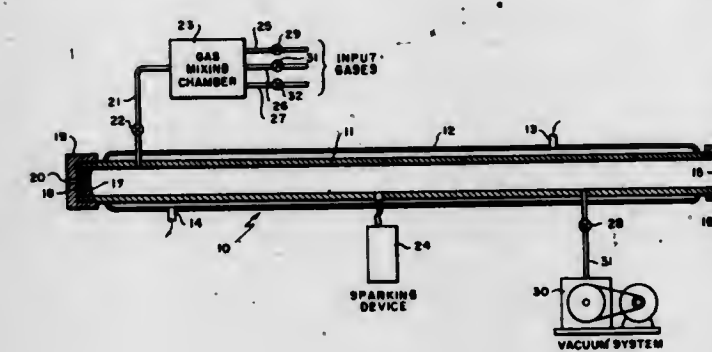
Billie J. Graham, Lothian, Md. 20820

Filed July 30, 1968, Ser. No. 748,872

Int. Cl. H01s 3/00

U.S. Cl. 331-94.5

10 Claims



A molecular gas combustion laser includes a sealed metal tube having reflecting mirrors at each end thereof. A suitable mixture of gases is introduced under pressure into the tube chamber and ignited by an electrical sparking device thereby producing lasing action. The laser output is taken from a small orifice provided in one of the reflecting mirrors. System cooling is achieved by means of a water jacket surrounding the metal tube.

3,573,656

LASER OSCILLATOR WITH MODE SELECTOR

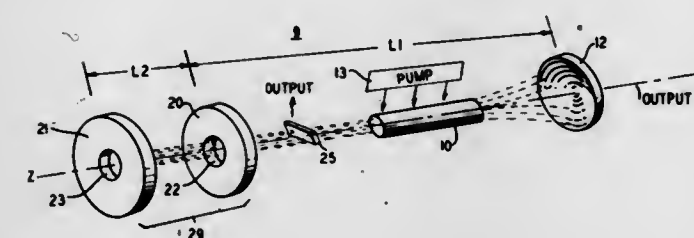
Enrique A. J. Marcatili, Rumson, N.J., assignor to Bell Telephone Laboratories Incorporated, Murray Hill, N.J.

Filed Dec. 23, 1968, Ser. No. 786,225

Int. Cl. H01s 3/00

U.S. Cl. 331-94.5

7 Claims



Unwanted longitudinal modes, typically generated by a laser oscillator, are suppressed by replacing one of the two uniformly reflecting cavity mirrors with a pair of longitudinally spaced apertured mirrors. Between themselves, the apertured mirrors form an auxiliary cavity supportive of a set of longitudinal modes that are different than the set supported by the primary cavity. As a result, the laser can only oscillate at those frequencies common to both resonant cavities. The mode selectivity is made continuously variable by providing means for changing the relative size of the beam and the apertures in the auxiliary cavity mirrors.

3,573,657

NITROGEN-PHOSPHINE LASER (U)

Barry R. Bronfin, Weathersfield, and Daniel J. Seery, Glastonbury, Conn., assignors to United Aircraft Corporation, East Hartford, Conn.

Filed Dec. 23, 1968, Ser. No. 786,484

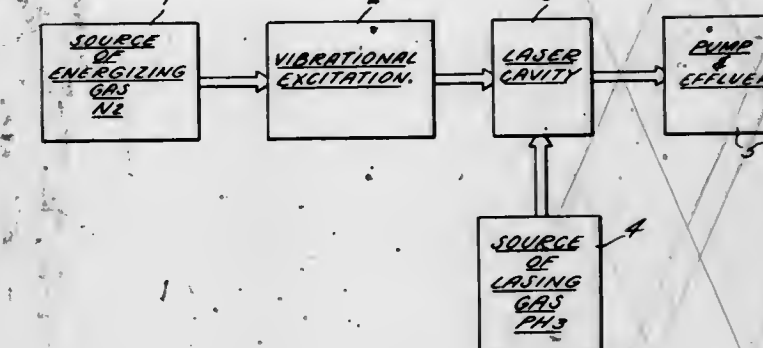
Int. Cl. H01s 3/22

U.S. Cl. 331-94.5

4 Claims

A gas laser utilizes vibrationally excited nitrogen as an energizing gas and, through resonant collisions with a lasing gas, transfers the energy to the lasing gas, preferentially to an

upper laser energy level. The lasing gas is phosphine, which is preferably introduced directly into the laser cavity free of



prior excitation so as to avoid molecular dissociation. Laser energy at 8.3, 7.5 and 30.0 microns is produced.

3,573,658

TANK CAVITY RESONATOR FOR USE IN HIGH FREQUENCY OSCILLATOR

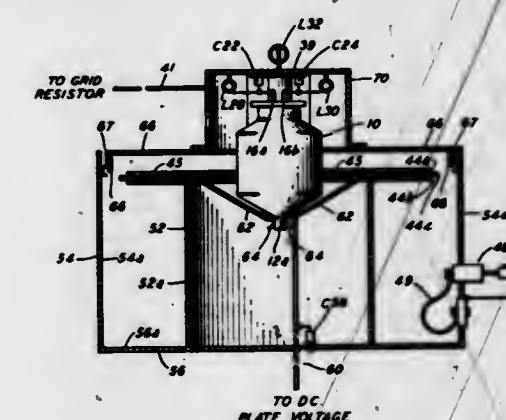
George R. Hair, Clifton, N.J., and John G. Nielsen, Wantagh, N.Y., assignors to Bondit Corp., Newark, N.J.

Filed Mar. 12, 1969, Ser. No. 806,544

Int. Cl. H03b 5/10

U.S. Cl. 331-96

10 Claims



A tank cavity resonator, including plate tuning capacitance, plate blocking capacitance, and tank inductance, for use in high frequency (e.g. UHF) oscillators, comprises a pair of concentric metallic cylinders, an outer and an inner cylinder, closed at one end by a common baseplate. A planar, three-layer (metal-insulator-metal) member forming the plate blocking capacitor contacts the other end of the inner cylinder and is spaced from a movable planar metallic member which contacts the other end of the outer cylinder, thereby forming a variable plate tuning capacitor. The tank inductance is formed by the current path which includes the outer surface of the inner cylinder, the upper surface of the baseplate and the inner wall of the outer cylinder.

3,573,659

FERRIMAGNETICALLY TUNABLE GUNN OSCILLATOR

Michael Dydyk, Long Island City, N.Y., assignor to Loral Corporation, Bronx, N.Y.

Filed Feb. 20, 1969, Ser. No. 800,985

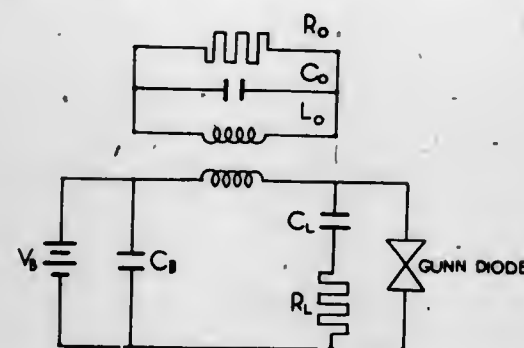
Int. Cl. H03b 7/14

U.S. Cl. 331-99

4 Claims

A very wide frequency tuning (5.8 to 13.0 GHz) Gunn

effect oscillator using the properties of a ferrimagnetic region having a finite zero voltage current characteristic of, but not limited to, Josephson tunnel junctions. When driven



resonator sphere as a tuning element.

3,573,660

BROADBAND, REFLECTION-TYPE SINGLE SIDEBAND MODULATORS

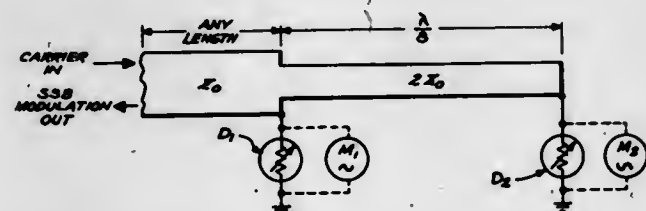
Robert V. Garver, Boyds, and Richard N. Johnson, Gaithersburg, Md.

Filed Apr. 24, 1969, Ser. No. 819,064

Int. Cl. H03c 1/52

U.S. Cl. 332-45

6 Claims



A distributed parameter, single path, phase differential reflection circuit utilizes two nonlinear diodes to generate a single sideband signal with broadband power levels.

3,573,661

SNS SUPERCURRENT JUNCTION DEVICES

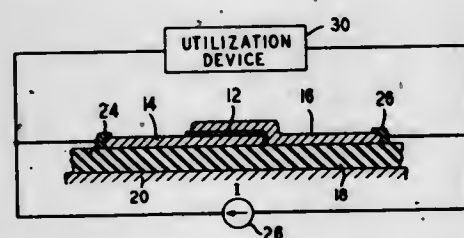
Dean E. McCumber, Summit, N.J., assignor to Bell Telephone Laboratories, Incorporated, Murray Hill, N.J.

Filed Aug. 20, 1968, Ser. No. 753,955

Int. Cl. H03k 3/38

U.S. Cl. 331-107

14 Claims



A supercurrent device includes a superconductor-normal metal-superconductor (SNS) structure which has a current-voltage characteristic analogous to that of Josephson tunnel junctions but relies on a proximity effect rather than tunneling. Several devices employing the SNS structure are disclosed: a basic cryogenic switch or logic device, pulse generators and parametric devices.

3,573,662

WEAK-LINK SUPERCURRENT PULSE GENERATORS

Theodore A. Fulton, North Plainfield, N.J., assignor to Bell Telephone Laboratories, Incorporated, Murray Hill, N.J.

Filed Aug. 20, 1968, Ser. No. 753,987

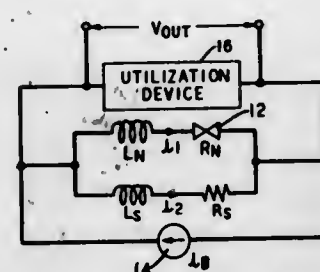
Int. Cl. H03k 3/38

U.S. Cl. 331-107

16 Claims

A weak-link supercurrent pulse generator includes an inductive-resistive circuit connected across an interfacial

region having a finite zero voltage current characteristic of, but not limited to, Josephson tunnel junctions. When driven



by a current in excess of a critical supercurrent the device generates nanosecond pulses at gigahertz frequencies.

3,573,663

FREQUENCY CONTROL CIRCUIT

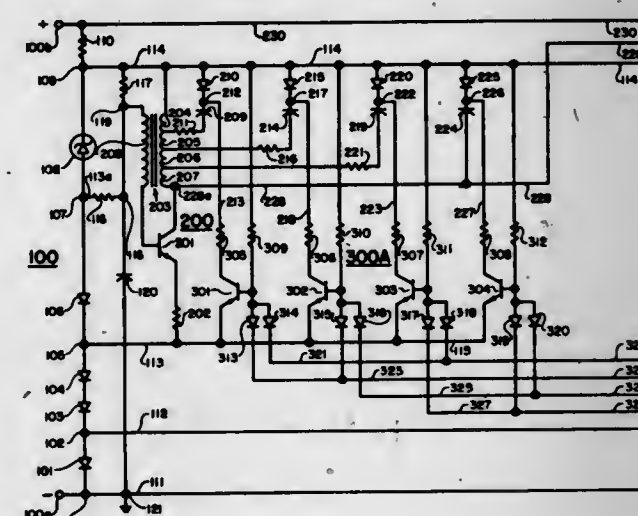
Henry Martin Hoge, Bay Village, and Benny K. Barnes, Lorain, Ohio, assignors to Lorain Products Corporation

Filed Feb. 10, 1969, Ser. No. 804,350

Int. Cl. H03b 5/12

U.S. Cl. 331-117

11 Claims



A device for producing a predetermined periodicity of discrete, different signals at an output. A pulse generating means produces a recurrent pulse pattern to operate a translating means which converts the pulse pattern to a recurrent sequence of timing pulses. The timing pulses in turn operate timing responsive means to successively energize each of a plurality of frequency determining circuits thereby establishing a multiplicity of different discrete, constant amplitude frequencies delivered sequentially in accordance with the periodicity of the timing pulses and the sequential operation of the timing responsive means.

3,573,664

VOLTAGE CONTROLLED OSCILLATOR CONSISTING OF A BISTABLE MULTIVIBRATOR WITH FEEDBACK CIRCUITS

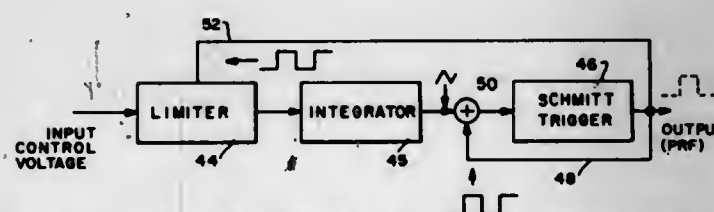
Don M. Jacob, 7912 Cowan Ave., Los Angeles, Calif. 90045

Original application May 2, 1968, Ser. No. 726,118, now Patent No. 3,475,753. Divided and this application July 29, 1969, Ser. No. 846,657

Int. Cl. H03k 3/02

U.S. Cl. 331-143

9 Claims



A voltage controlled oscillator capable of producing a square-wave pulse repetition frequency, and characterized by a constant-percentage change in square-wave PRF at the

output per volt change at the input. The VCO includes a limiter, integrator and Schmitt trigger connected serially.

ERRATUM

For Class 332-45 see:
Patent No. 3,573,660

3,573,665

THIN FILM Y-JUNCTION CIRCULATOR

Reinhard H. Knerr, Allentown, Pa., assignor to Bell Telephone Laboratories Incorporated, Murray Hill, N.J.

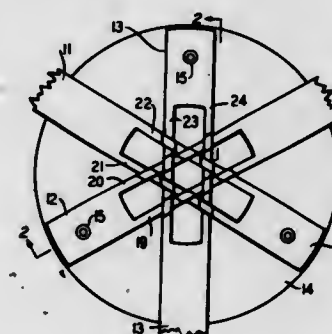
Continuation of application Ser. No. 795,907, Feb. 3, 1969.

This application Oct. 7, 1969, Ser. No. 864,371

Int. Cl. H01p 1/32

U.S. Cl. 333-1.1

7 Claims



A Y-junction strip line circulator adapted to thin film construction techniques. It has been discovered that if the 12 crossings in a Y-junction circulator of the type having two split inner conductors per branch are laid down in a perfectly symmetrical manner, the capacitance of these crossings can be made to resonate with the inductance of the conductors thus eliminating the extra, external capacitance heretofore believed necessary for strip line circulators.

3,573,666

FREQUENCY ADJUSTABLE MICROWAVE STRIPLINE CIRCULATOR

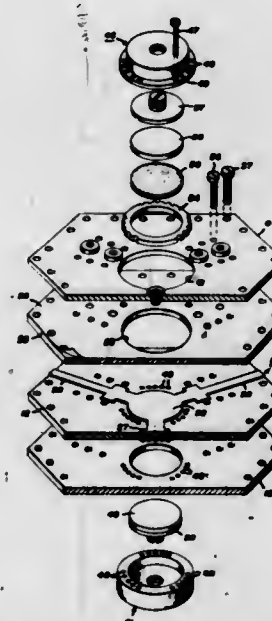
Terence P. Caffrey, Syracuse, and Thomas J. O'Neill, Kirkville, N.Y., assignors to General Electric Company

Filed Feb. 27, 1969, Ser. No. 802,924

Int. Cl. H01p 5/12, 3/08

U.S. Cl. 333-1.1

4 Claims



A microwave stripline circulator is disclosed which is adjustable for operation over a wide range of frequencies. This is accomplished by a combination of an incremental coarse tuning means and a fine tuning means. The coarse tuning means comprises an arrangement providing for a selectable number of attachment screws around the periphery of the resonator disc of the circulator, and the fine tuning means comprises an arrangement for providing adjustable pressure to a garnet disc positioned at the resonator disc.

3,573,667

AUTOMATIC EQUALIZER ADJUSTMENT APPARATUS

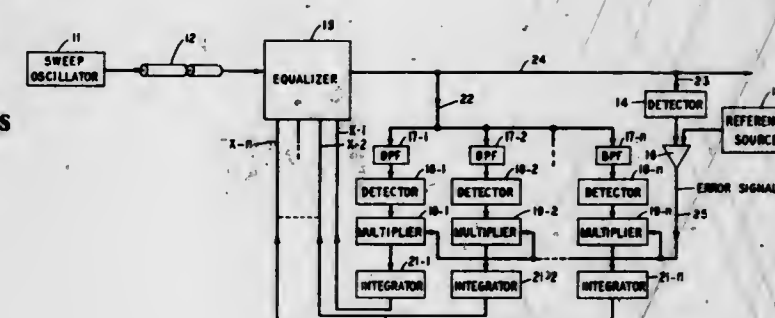
Chih-Yu Kao, Lawrence, and Carl F. Kurth, Andover, Mass., assignors to Bell Telephone Laboratories, Incorporated, Murray Hill, N.J.

Filed Oct. 8, 1969, Ser. No. 864,664

Int. Cl. H04b 3/14; H03h 7/16

U.S. Cl. 333-18

5 Claims



An equalizer of a coaxial transmission system is automatically adjusted by applying a sweep signal to the equalizer and comparing the output of the equalizer with a predetermined reference signal to develop an error signal. The output signal of the equalizer is simultaneously converted into a plurality of weighting signals, each representing the energy content of the output signal within a passband which includes one equalizer transmission network characteristic, i.e., "bump." Each weighting signal is multiplied by the error signal and integrated to develop a control signal for the associated equalizer transmission network.

3,573,668

SYSTEM FOR ADAPTIVELY EQUALIZING A DATA SIGNAL HAVING A CLOSED DATA EYE

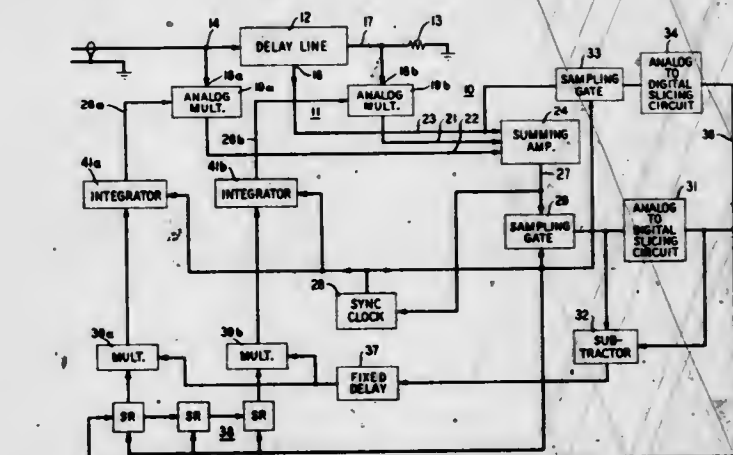
Edward C. Bender; Donald Hirsch, Matawan, N.J., and Harry R. Rudin, Jr., Thalwil, Switzerland, assignors to Bell Telephone Laboratories, Incorporated, Murray Hill, N.J.

Filed Dec. 5, 1968, Ser. No. 781,453

U.S. Cl. 333-18

Int. Cl. H04b 3/04

5 Claims



The automatic transversal filter equalizer is modified for improved startup performance in the presence of high initial distortion by providing control signals for adaptive adjustment of tap multipliers from correlations of the polarity of unequalized received data samples, rather than the polarity of data samples in the equalizer output, with the polarity of an error component in the equalizer output.

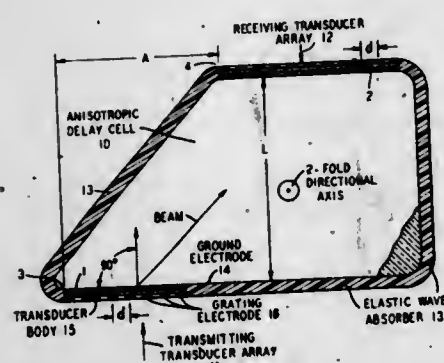
3,573,669

DISPERSIVE DELAY CELL USING ANISOTROPIC MEDIUM

Emmanuel P. Papadakis, Allentown, Pa., assignor to Bell Telephone Laboratories, Incorporated, Murray Hill, N.J.
Filed Sept. 3, 1968, Ser. No. 756,770
Int. Cl. H03h 9/30; H01v 7/02

U.S. Cl. 333-30

8 Claims



An elastic wave dispersive delay cell which uses a cell body of an elastically anisotropic delay medium and a pair of spaced transducer arrays disposed on opposing parallel surfaces of the body to achieve nonlinear dispersion.

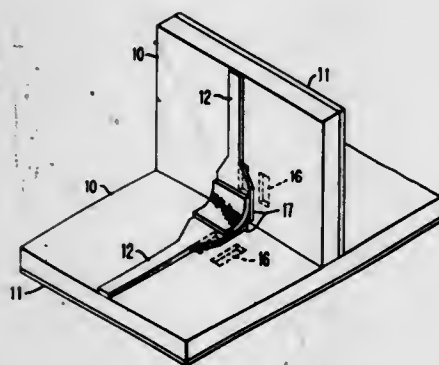
3,573,670

HIGH-SPEED IMPEDANCE-COMPENSATED CIRCUITS

John R. Sköber, Endicott, N.Y., assignor to International Business Machines Corporation, Armonk, N.Y.
Filed Mar. 21, 1969, Ser. No. 809,350
Int. Cl. H03h 7/38; H01p 3/08

U.S. Cl. 333-33

11 Claims



Impedance-compensated circuits for high frequency microstrip signal transmission systems comprising a dielectric board of suitable thickness depending upon the dielectric constant of the material of the board and the frequency of the signals to be transmitted within the system. A ground conductor plate is attached to one planar surface of the dielectric board. The other planar surface of the dielectric board is adapted to receive and have affixed thereto any of a plurality of combinations of signal-conducting elements. The signal-conducting elements have predetermined cross-sectional areas depending upon the signals to be transmitted within the system. Due to microminiature construction, the signal-conducting elements may be provided with lead and circuit-connecting areas of increased size to facilitate making electrical connections for devices to be attached with the elements. The impedance changes due to the increased size of areas are compensated for by means of slots or apertures in the ground conductor plate opposite or in the vicinity of the connecting areas.

3,573,671

LATTICE-TYPE FILTERS EMPLOYING MECHANICAL RESONATORS HAVING A MULTIPLICITY OF POLES AND ZEROS

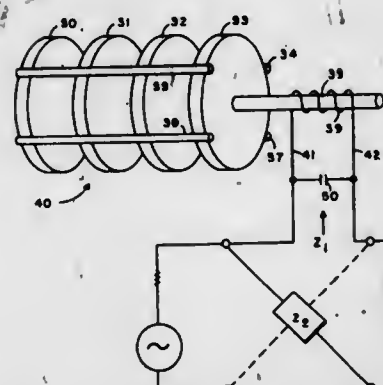
Robert A. Johnson, Tustin, and Roger J. Teske, Santa Ana, Calif., assignors to Collins Radio Company, Cedar Rapids, Iowa

Filed Nov. 18, 1968, Ser. No. 776,496

Int. Cl. H03h 9/32, 9/26

U.S. Cl. 333-72

13 Claims



A lattice-type filter with the series arm and crossarm impedances comprised of a multiresonant mechanical structure having a plurality of arrangeable poles and zeros. The multiresonant structure can comprise a plurality of discs with their axes lying along a common line. Coupling wires secured to the disc perimeters hold them in place and transmit energy. The input means is a coil wound on a magnetostrictive rod secured to an end disc.

3,573,672

CRYSTAL FILTER

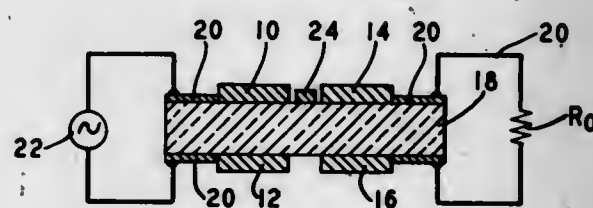
Irvin E. Fair, Treasure Island, Fla., and Edwin C. Thompson, Hokendauqua, Pa., assignors to Bell Telephone Laboratories, Incorporated, Murray Hill, N.J.

Filed Oct. 30, 1968, Ser. No. 771,843

Int. Cl. H04r 17/00; H01r 7/00

U.S. Cl. 333-72

3 Claims



The coupling between two loosely coupled electrode pairs mounted on the same crystal body to form a monolithic filter is vernier adjusted by plating an area in the interelectrode region.

3,573,673

ACOUSTIC SURFACE WAVE FILTERS

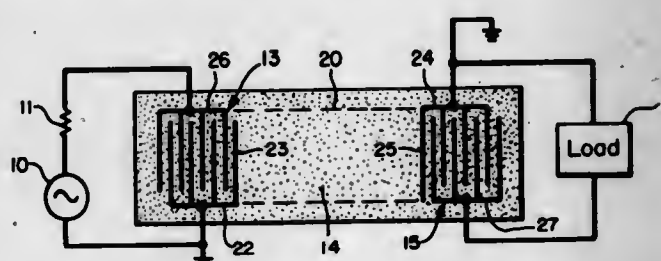
Adrian J. De Vries, Elmhurst; Fleming Dias, Chicago, and Thomas J. Wojcik, Mount Prospect, Ill., assignors to Zenith Radio Corporation, Chicago, Ill.

Filed Jan. 8, 1969, Ser. No. 789,839

Int. Cl. H03h 9/20

U.S. Cl. 333-72

7 Claims



A body of piezoelectric material is capable of propagating acoustic surface waves and a first transducing device is

coupled to a surface of the body to develop those waves. Spaced on the same surface from that first device is a second transducing device. The spacing is sufficiently small that crosstalk exists between the devices. To reduce the magnitude of that crosstalk, one or more of several different decoupling arrangements are included. These comprise the connection of diametrically opposite transducer electrodes to a common plane of reference potential, the connection of the mutually closest electrodes of the respective transducers to a plane of common reference potential, the disposition of one or more ground electrodes between the transducers and across the path of wave propagation, the development across the transducers of signals balanced with respect to such a plane, the physical shielding of the space generally above one of the transducers, the inclusion of a conductive shield on the surface opposite the wave-propagating surface and the formation of shielding channels in that surface opposite the wave-propagating surface. In addition, the wave propagation path advantageously is caused to be oriented at an angle relative to the end surfaces of the piezoelectric body in order to minimize reflected wave interference.

3,573,674

TAILORED RESPONSE MICROWAVE FILTER

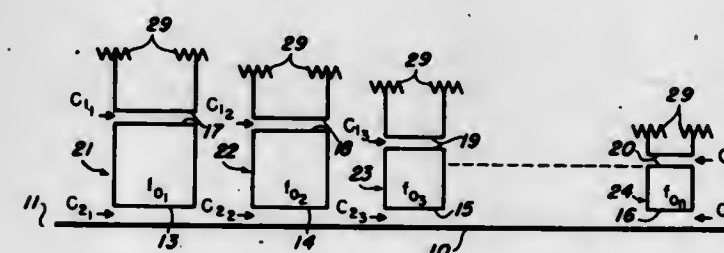
Donald R. Wehner, San Diego, Calif., assignor to the United States of America as represented by the Secretary of the Navy

Filed Apr. 30, 1969, Ser. No. 820,404

Int. Cl. H03h 7/14; H01p 3/08

U.S. Cl. 333-73

1 Claim



A multiple section microwave filter capable of being accurately tailored to special frequency response requirements over wide bandwidths is disclosed. The tailored response filter consists of an array of cascaded traveling-wave directional filters. Each filter section couples power out of a through transmission line into suitable microwave terminations. Due to the directional characteristics of traveling-wave directional filters, there is no interaction between sections. Thus the frequency response of the array is the product of the transfer functions of the individual sections. The coupling constants and the center frequencies of individual filter sections are tailored, i.e., synthesized, to result in a set of individual transfer functions which will produce the desired overall response. The tailored response filter can be used in wide bandwidth microwave systems for phase and amplitude weighting and for equalization functions.

3,573,675

HIGH FREQUENCY BAND PASS FILTER

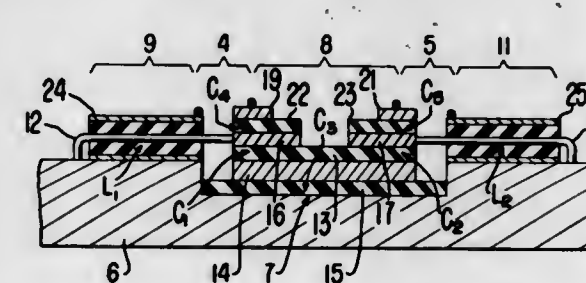
Thomas C. Leonard, Topsfield, Mass., assignor to Varian Associates, Palo Alto, Calif.

Filed Aug. 13, 1969, Ser. No. 849,716

Int. Cl. H03h 7/10; H01p 1/00

U.S. Cl. 333-73

5 Claims



A high frequency band-pass filter is disclosed. The filter includes an input resonator and an output resonator

decoupled by means of a capacitor common to both resonators. A pair of capacitors are provided for impedance transforming into and out of the resonators, respectively. The aforementioned capacitors and the two resonator capacitors are formed by a stack of insulatively immediately overlying conductive plates stacked over a ground plane. The conductive plates have mutually opposed areas which decrease in the ascending direction of the stack. The two inductors of the tuned circuits are formed by a pair of short sections of transverse electromagnetic transmission line connected between a pair of plates in the stack and the ground plane.

3,573,676

ELEMENTS FOR THE TRANSMISSION OF ELECTRICAL ENERGY

Ferdinand Mayer, 8 Boulevard Gambetta, Grenoble, Isere, France

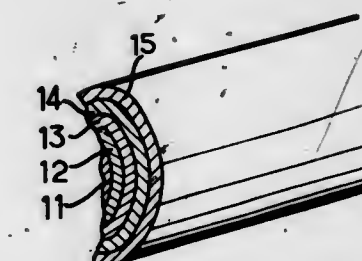
Filed Nov. 26, 1965, Ser. No. 509,878

Claims priority, application France, Nov. 26, 1964, 996391

Int. Cl. H03h 7/02

U.S. Cl. 333-79

20 Claims



A device for transmitting electrical energy and including at least one conductive element whose structure is heterogeneous in the radial direction in that the element is composed of a plurality of concentric layers which are so selected that the value of at least one electrical or magnetic parameter of these layers varies progressively from one layer to the next, and hence in the direction of the radius of the element, the thickness of each layer being at least equal to the conventional skin effect thickness of that layer at a frequency which is at least equal to the cutoff frequency of the element.

3,573,677

CONNECTOR WITH PROVISION FOR MINIMIZING ELECTROMAGNETIC INTERFERENCE

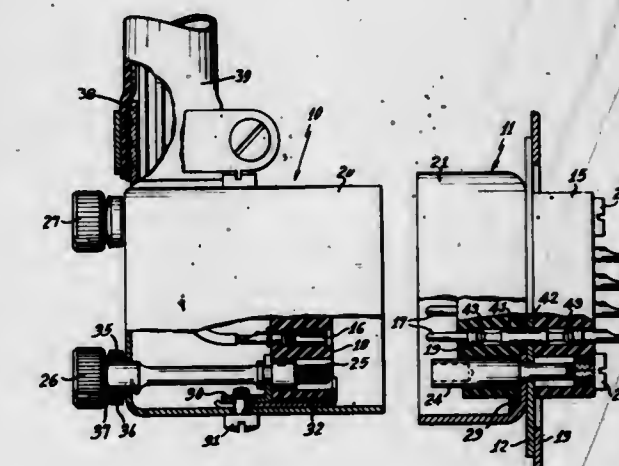
Donald R. Deter, Stratford, Conn., assignor to Litton Systems, Inc., Beverly Hills, Calif.

Filed Feb. 23, 1967, Ser. No. 625,893

Int. Cl. H01h 7/14

U.S. Cl. 333-79

2 Claims



An electrical connector provided with shielding and filtering of the contacts to suppress electromagnetic interference, i.e., leakage into or radiation of energy from the connector and conduction of undesired high-frequency current through the connector contacts. In the illustrative embodiment, the connector contacts are provided with filter

units which are held in place on the contacts by resilient noninductive contact washers which protect the fragile filter units against damage and connect the elements of the filter in circuit. The outer electrodes of the filter units are connected through conductive gaskets to a metal plate forming a common ground plane for the respective filters.

3,573,678

DIRECT COUPLED VARIABLE GYRATOR

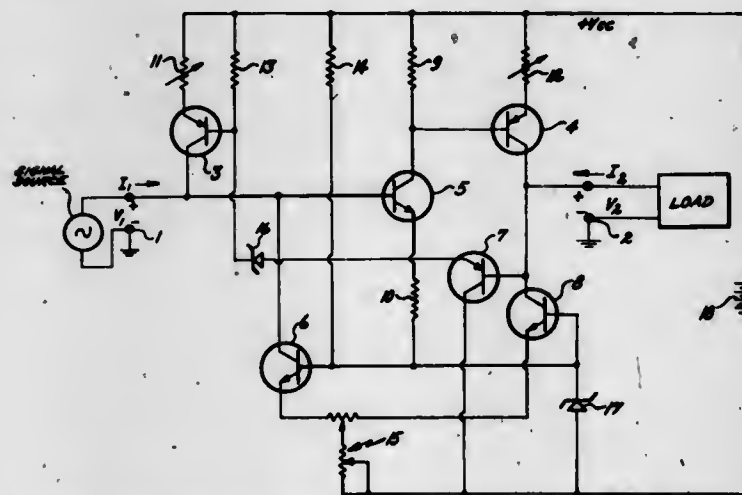
William New, Jr., Los Angeles; Robert W. Newcomb, Palo Alto, Calif., and Douglas E. Treter, Uncasville, Conn., assignors to the United States of America as represented by the Secretary of the Air Force

Filed Apr. 11, 1969, Ser. No. 815,370

Int. Cl. H03h 7/44, 11/00

U.S. Cl. 333-80

3 Claims



The gyrator of the present invention comprises an electronic circuit arrangement of transistors and resistance means in combination with unique biasing means which permit gyrator operation without the normally required input and output blocking capacitors. Transistor means connected to the input and output terminals of the gyrator perform as current to voltage converters and cooperate with a third intermediate voltage inverting transistor means and appropriate biasing resistors to achieve gyrator realization. The biasing means which includes a stable voltage source such as a Zener diode permits gyrator input and output to remain at zero potential during periods when no signal is applied.

3,573,679

TUNING APPARATUS FOR MICROWAVE RESONANT CAVITIES

Albert Henry Johnson, Mudeford, Christchurch, England, assignor to Minister of Technology in Her Britannic Majesty's Government United Kingdom, Great Britain and Northern Ireland, London, England

Filed Jan. 2, 1969, Ser. No. 788,417

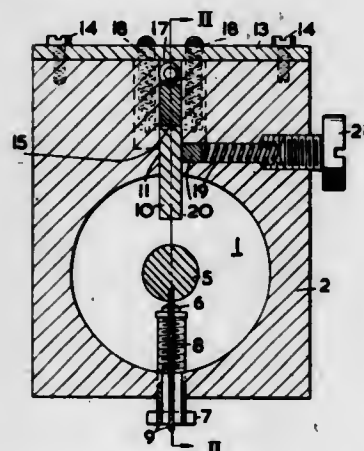
Claims priority, application Great Britain, Jan. 12, 1968,

Feb. 23, 1968, 1820;8898

Int. Cl. H01p 7/04

U.S. Cl. 333-82

16 Claims



A coaxial electromagnetically resonant cavity comprises a tuning vane which is parallel to the axis of the cavity and

extends for substantially the whole length thereof, and adjusting means for varying the distance between the tuning vane and the inner conductor of the cavity.

The vane may be either conductive or dielectric material slidably mounted in the structure of the cavity. The adjusting means may include a slidably mounted wedge-like member bearing against a surface of the tuning vane. The vane may be in two parts adjustably connected together.

3,573,680

TEMPERATURE COMPENSATION OF MICROWAVE CAVITY

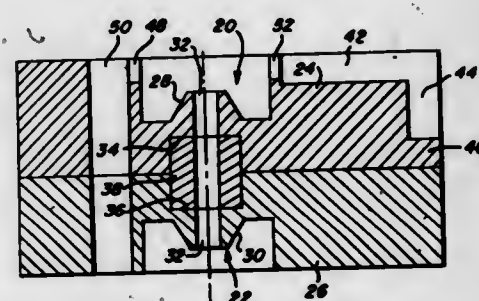
Roger G. Carignan, Wilmington, Mass., assignor to Raytheon Company, Lexington, Mass.

Filed Apr. 24, 1969, Ser. No. 818,885

Int. Cl. H01p 7/06, 1/30; H01j 23/70

U.S. Cl. 333-83

5 Claims



A microwave cavity resonator is disclosed having thermal compensation means to substantially reduce the effects on operating frequency as a result of temperature variations.

Cylindrical hollow cavity resonators defined by metals of a predetermined thermal expansion coefficient are provided with reentrant gap defining structures with such structures fabricated from or having associated therewith a compensating material of a lower thermal coefficient of expansion characteristic. The temperature compensating members introduce with respect to the frequency determining components of the resonator a substantially positive thermal coefficient of frequency to cancel and measurably offset the inherently negative thermal coefficient frequency variations due to the metallic composition of the cavity walls. Gridless as well as gridded cavity resonator structures comprise applicable embodiments as well as fixed frequency or tunable microwave devices.

3,573,681

HELICAL WAVEGUIDE FORMED FROM DIELECTRIC RIBBON HAVING SYMMETRICALLY DISPOSED CONDUCTIVE STRIPS ON OPPOSITE SIDES

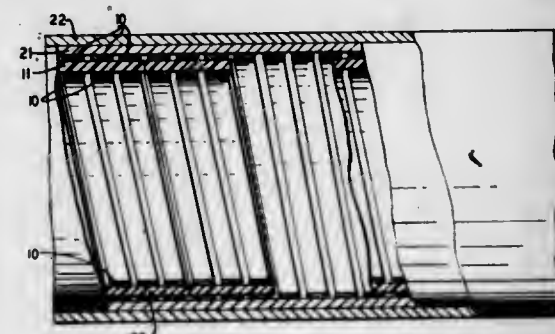
Stewart E. Miller, Middletown Township, Monmouth County, N.J., assignor to Bell Telephone Laboratories, Incorporated, Murray Hill, N.J.

Filed Mar. 12, 1969, Ser. No. 806,662

Int. Cl. H01p 3/12, 3/08, 3/18

U.S. Cl. 333-95

1 Claim



A helix waveguide structure is adapted to printed circuit techniques. In particular, the wire helix of the prior art is replaced by pairs of helices printed on opposite sides of a low loss dielectric member. The structure is advantageously fabricated by printing conductive strips on both sides of a dielectric ribbon and winding the ribbon into helix form.

3,573,682

STEP-BY-STEP ROTATABLE TELEVISION TUNER WITH OPEN-CENTER ROTOR ASSEMBLY

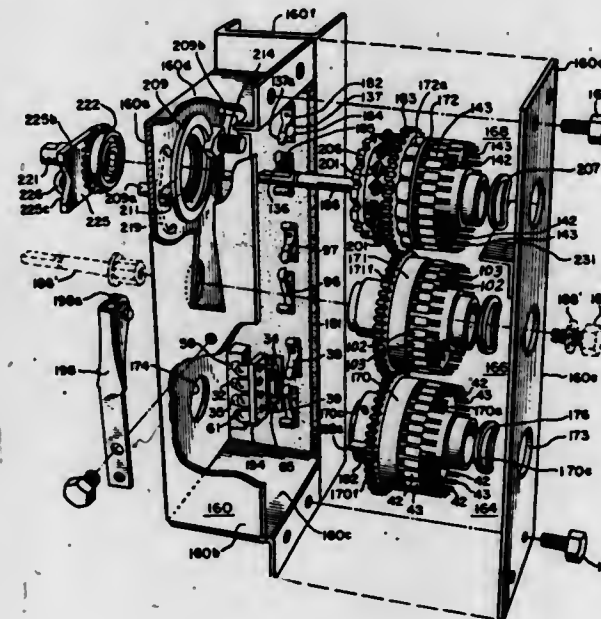
George R. Dickinson, Norridge, and Howard C. Grossenheider, Deerfield, Ill., assignors to Zenith Radio Corporation, Chicago, Ill.

Filed Apr. 4, 1968, Ser. No. 718,786

Int. Cl. H03j 5/30; H01h 19/58; F16h 35/18

U.S. Cl. 334-1

1 Claim



Included in a step-by-step VHF tuner are three small rotor assemblies, such as turrets, mechanically intercoupled in side-by-side relationship and each having a series of tuning elements selected ones of which are rendered effective in different angular positions of the rotor assembly to achieve tuning to different VHF television channels. To effect rotatable mounting, each rotor assembly has an open-center hub journaled in apertures of a pair of parallel support plates, such as opposite walls of the tuner housing. A channel selector shaft may be inserted into and keyed to the hub of any one of the rotor assemblies to effect simultaneous rotation of all three. One of the hubs, other than that receiving the tuning shaft, may be open along its entire axis to provide an access opening through the tuner to permit control of other functions in the receiver, such as control of a UHF tuner.

3,573,683

VARACTOR DIODE TUNED CIRCUIT HAVING SUBSTANTIALLY CONSTANT LOADED Q-FACTOR

Richard S. Marshall, and Allan S. Summers, Ilford, England, assignors to The Plessey Company Limited, Ilford, England

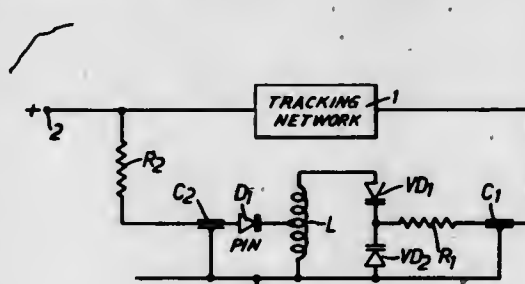
Filed May 29, 1968, Ser. No. 733,102

Claims priority, application Great Britain, June 2, 1967,

25491/67

U.S. Cl. 334-15

8 Claims



A tuned circuit arrangement comprising a tuned circuit having varactor diode means for the tuning thereof over a band of frequencies, and compensation means operative for providing selective damping to said tuned circuit so that the loaded Q-factor of the tuned circuit arrangement remains substantially constant over the frequency band.

3,573,684

TUNER FOR A WAVE SIGNAL RECEIVER

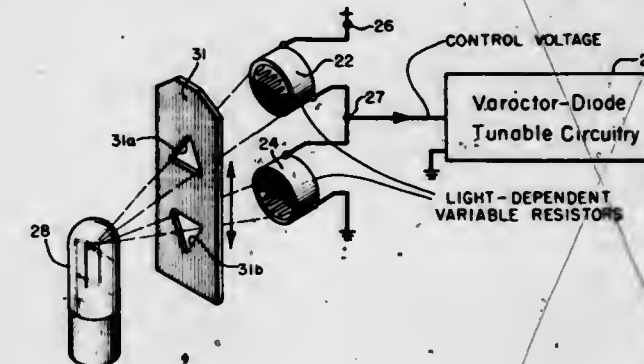
George R. Dickinson, Norridge, Ill., assignor to Zenith Radio Corporation, Chicago, Ill.

Filed Feb. 28, 1969, Ser. No. 803,215

Int. Cl. H03j 3/18, 5/24

U.S. Cl. 334-15

4 Claims



A variable amplitude DC control voltage, for tuning varactor-diode type tunable circuitry, is developed by a light-controllable voltage source having a light-sensitive device, such as a light-dependent resistor, exposed to an adjustable amount of light. In response to different discrete light levels, the control voltage assumes different discrete amplitude levels which in turn effect tuning to different broadcast channels.

3,573,685

ELECTROMAGNETIC SWITCHING DEVICE

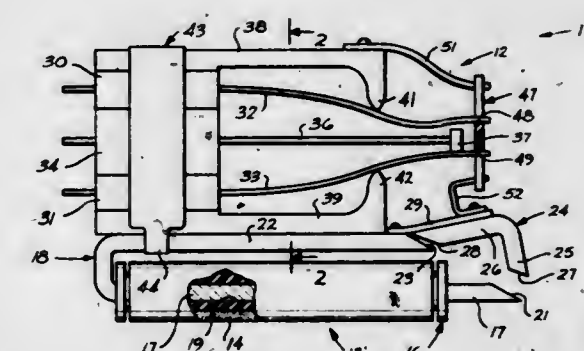
Robert F. Klose, Blacklick, and Virgil L. Marsh, Reynoldsburg, Ohio, assignors to Western Electric Company, Incorporated, New York, N.Y.

Filed Aug. 13, 1969, Ser. No. 849,683

Int. Cl. H01h 50/00

U.S. Cl. 335-135

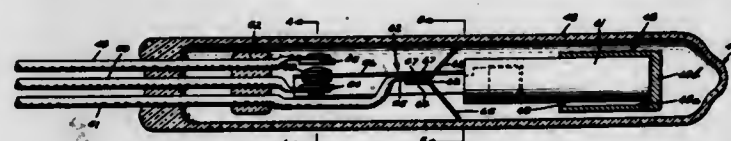
3 Claims



An electromagnetic switching device, such as a wire spring relay, includes a coil having one leg of a substantially U-shaped core inserted into a central bore of the coil. An L-shaped armature is hinged for movement to the core so that pole faces of the armature mate with associated pole faces of the core when an operating potential is applied to the coil. A plurality of groups of parallel wires are embedded in and extend from a plastic support block which is attached to one leg of the core. The ends of the wires are spaced apart and extend through openings in a card which is attached to the movable armature and a restoring spring. When the switching device is operated, the armature is moved so that the pole faces thereof mate with the associated pole faces of the core whereby the card is moved against the biasing of the restoring spring to bring together selected wires of the parallel groups of wires to facilitate electrical connections in external circuits connected to the opposite ends of the selected wires.

3,573,686 MAGNETIC SWITCH

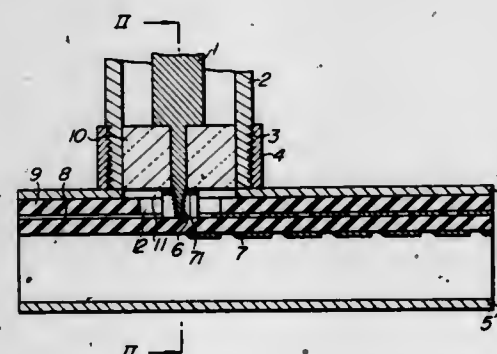
Stanley R. Mitick, Morrison, Ill., assignor to General Electric Company
Original application Feb. 3, 1971, Ser. No. 795,876. Divided and this application Dec. 4, 1969, Ser. No. 882,043
Int. Cl. H01h 51/28
U.S. Cl. 335-153 5 Claims



A switch includes a nonmagnetic container, a pair of spaced apart stationary contacts in the container, and a movable contact structure. The movable contact structure includes a cylindrical section movable by magnetic attraction between opposed extreme positions for engaging the movable contact structure with the stationary contacts, the movable contact structure tending to rebound from the stationary contacts. A cylindrical damper of nonmagnetic material is loosely mounted about the cylindrical section to move with the cylindrical section with such lost motion that they collide approximately as the movable structure begins to rebound.

3,573,687 MEANS FOR CONNECTING COAXIAL LINE WITH SLOW WAVE CIRCUIT

Shigetugu Watanabe, Kawasaki-shi, Japan, assignor to Matsushita Electric Industrial Co., Ltd., Osaka, Japan
Filed June 27, 1968, Ser. No. 740,654
Claims priority, application Japan, July 11, 1967, July 12, 1967, 42/45174; 42/45408
Int. Cl. H01r 17/04; H01p 3/08
U.S. Cl. 339-177 2 Claims



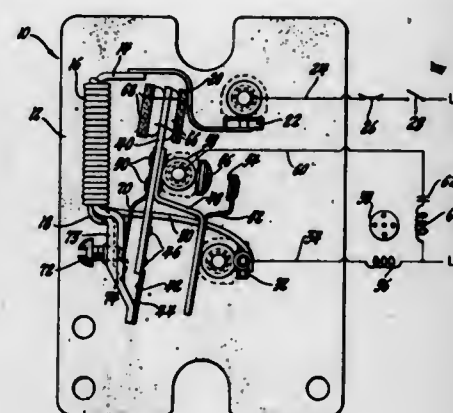
Means for electrically connecting a coaxial line with a slow wave circuit in a satisfactory manner, that is, in such a manner as to avoid reflection at the portion of connection and to produce a mechanically strong connection.

3,573,688 MOTOR RELAY

James A. Capter, Englewood, Ohio, assignor to General Motors Corporation, Detroit, Mich.
Filed Nov. 26, 1969, Ser. No. 880,206
Int. Cl. H01h 3/00 4 Claims

In preferred form a starting relay for an electric motor having a wire wound electromagnetic coil and a pivotal armature attached thereto. A normally open contact pair comprising one fixed contact and one movable contact on said armature are closed upon pivotal movement of said armature in response to electromagnetic force of the coil during motor start. A cantilevered leaf spring on said armature is contracted at its free end by a calibrating screw on the coil. Adjustment of the calibrating screw with respect to the leaf spring sets a predetermined spring bias in

opposition to the electromagnetic force holding the armature against the coil and therefore the relay may be set to open

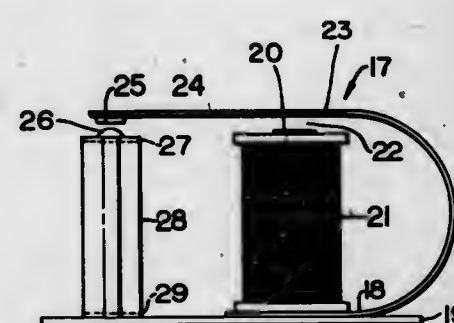


the starting contacts at a predetermined current level in the coil.

3,573,689 NONSTICKING OBTURATOR FOR DIRECT CURRENT RELAYS

Rodney Hayden, Wentworth, Ontario, Canada, assignor to United-Carr Incorporated, Boston, Mass.
Filed May 7, 1969, Ser. No. 822,530
Int. Cl. H01h 1/26 1 Claim

U.S. Cl. 335-196

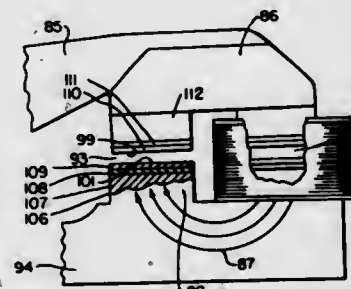


This invention relates to a nonsticking obturator for direct current relays.

3,573,690 ELECTRICAL SOLENOID ASSEMBLY

Chester G. Jones, Kettering, and Harold D. Neal, Dayton, Ohio, assignors to The National Cash Register Company, Dayton, Ohio
Filed Oct. 6, 1969, Ser. No. 863,781
Int. Cl. H01f 1/00 5 Claims

U.S. Cl. 335-279

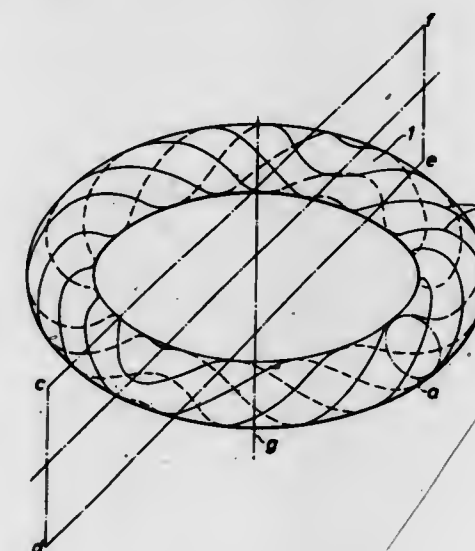


An electrical solenoid assembly having improved long life means for determining the length of the closed state air gap of the solenoid in combination with means for increasing operating efficiency through decreasing magnetic flux fringing at pole faces.

3,573,691 PLASMA CONTAINMENT SYSTEMS

John Bryan Taylor, Wallingford, England, assignor to United Kingdom Atomic Energy Authority, London, England
Filed Dec. 13, 1967, Ser. No. 690,153
Claims priority, application Great Britain, Dec. 14, 1966, 56093
Int. Cl. H01t 5/00 3 Claims

U.S. Cl. 335-299

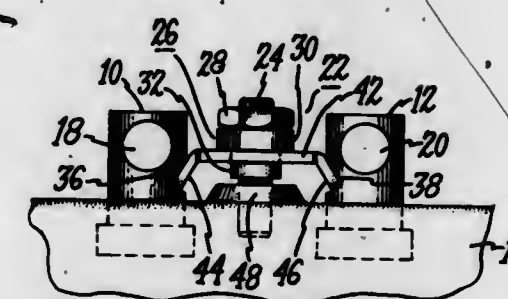


A plasma containment system comprises a hollow torus having a solenoidal winding and either additional multiple helical windings wound in opposite direction on either side of a plane containing the major axis of the torus or a conductor on the minor axis of the torus arranged to carry current in opposite directions on either side of said plane.

3,573,692 SECONDARY TERMINAL AND SHORTING DEVICE

Ralph B. Stetson, Durham, N.H., assignor to General Electric Company
Filed Sept. 19, 1969, Ser. No. 859,338
Int. Cl. H01f 27/04 3 Claims

U.S. Cl. 336-107



The secondary terminals of a current transformer are provided with a cutout section which provides a flat contact surface on each terminal. A short circuit member has a pair of depending angular legs having faces which are parallel to the flat contact surfaces of the secondary terminals. This provides a large contact area with good electrical contact between the secondary terminals and the shorting device.

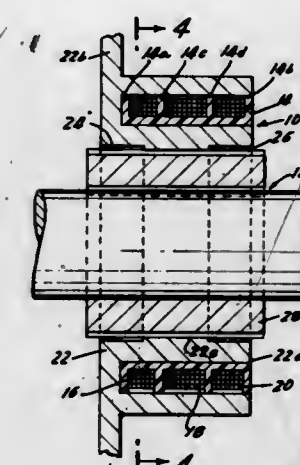
3,573,693 MULTINULL ROTARY VARIABLE DIFFERENTIAL TRANSFORMER

Jacob Chass, Forest Hills, N.Y., assignor to Pickering & Company, Inc., Plainview, N.Y.
Filed Mar. 6, 1969, Ser. No. 804,918
Int. Cl. H01f 21/06 5 Claims

U.S. Cl. 336-135

A rotary variable differential transformer having a plurality of null positions within 360° of mechanical rotation having each of two primary windings associated with a toothed magnetic ring, with the rings identical but angularly displaced and the primary windings wound in series opposition, and a

secondary winding associated with a toothed rotor being rotatable with respect to the toothed rings whereby the

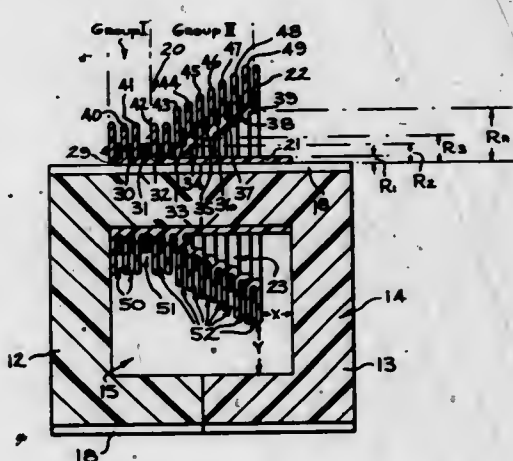


angular position of the rotor determines the voltage in the secondary winding from null to peak output.

3,573,694 HIGH VOLTAGE TRANSFORMER FOR TELEVISION RECEIVERS

Eugene K. Von Fange, Chesapeake; Julius Kemeny, Suffolk, and Sanjar Ghaem-Maghani, Chesapeake, Va., assignors to General Electric Company
Filed Oct. 28, 1969, Ser. No. 870,039
Int. Cl. H01f 27/30 7 Claims

U.S. Cl. 336-198



An improved high voltage transformer for television receivers and the like. The transformer coils are wound around novel slotted coil form means comprising hollow, electrically insulative means, the interior of which surrounds a portion of the transformer core means and the exterior of which is provided with a plurality of axially spaced circumferential slots. The slots for the high voltage windings are located at progressively increasing radial distances from the core means portion so as to provide a sufficiently great insulative barrier between the coil and the core means to prevent electrical arcing therebetween.

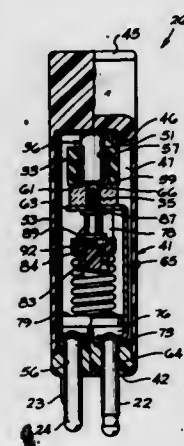
3,573,695 CIRCUIT PROTECTORS AND METHODS OF ASSEMBLING THE SAME

James B. Geyer, Baltimore; William D. O'Brien, Jr., Reisterstown, and Stephen A. Reisinger, Carney, Md., assignors to Western Electric Company, Incorporated, New York, N.Y.
Filed Sept. 18, 1969, Ser. No. 858,984
Int. Cl. H01h 61/00, 71/20; H01t 1/00 13 Claims

U.S. Cl. 337-29

A circuit protector consisting of a pair of assemblies, each of which has both a spark-gap protector for excessive voltage and a heat-coil protector for excessive current buildup, is provided with two springs, one of which is associated with each assembly. Each spring holds various elements of one of the assemblies in abutment and propels a grounding pin

released by the associated heat-coil protector when excessive current buildup is encountered in an accompanying circuit. Only one spring is needed with each assembly because a contact pin associated with each assembly floats within the circuit protector and is, therefore, subject to the force of the



spring allowing the spring to urge the various elements of the assembly into abutment. By modifying a housing within which the assemblies are mounted, the assemblies are moved into close proximity to thereby minimize the width of the circuit protector.

3,573,696

THERMOSTATIC SWITCH

Robert E. Shaw, Beverly, Mass., assignor to Sylvania Electric Products Inc.

Filed Oct. 30, 1967, Ser. No. 679,003

Int. Cl. H01h 37/04, 37/54

U.S. Cl. 337-89

9 Claims



A thermostatic switch comprising a thermal snap-action element which is constraining, and in electrical contact with a spring element. On overheating, the thermal element snaps away from, and releases, the spring element, thereby breaking the electrical circuit. The released or unstrained position of the spring element is spaced from the thermal element in order to prevent electrical contact when the latter returns to its normal position.

3,573,697

HERMETICALLY SEALED CIRCUIT BREAKER

Philip J. Dennis, Lynn, and Paul E. Gates, Danvers, Mass., assignors to Sylvania Electric Products Inc.

Filed Sept. 13, 1968, Ser. No. 759,649

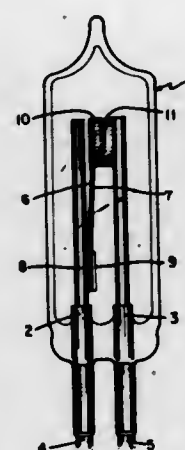
Int. Cl. H01h 37/04, 37/54, 61/01

U.S. Cl. 337-89

5 Claims

A circuit breaker having high amperage capacity includes a metallic snap-action element, capable of opening an electrical circuit upon thermal or current overload, disposed within a sealed glass envelope. Two metallic tubes are sealed

to, and pass through, one end of the envelope. Lead-in conductors, which also serve as supporting members for the



breaker assembly, extend through, and are sealed to, the metallic tubes.

3,573,698

THERMOSTAT CONTROL MECHANISM

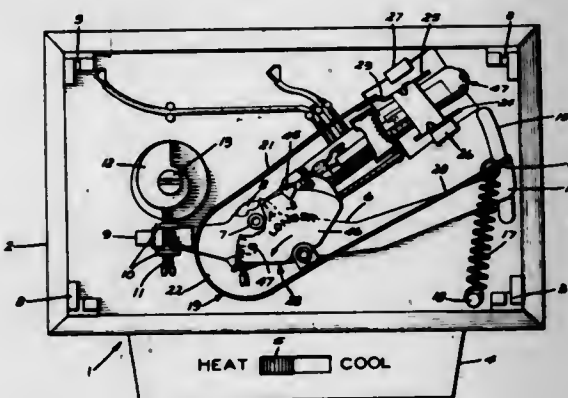
Stanley R. Mitick, Morrison, Ill., assignor to General Electric Company

Filed Feb. 3, 1969, Ser. No. 795,876

Int. Cl. H01h 37/14, H01h 37/18, H01h 37/52

U.S. Cl. 337-103

1 Claim



A thermostat control includes a return-bent bimetal member having a pair of longitudinally extending arms. One of the arms carries a yoke or armature for actuating an associated magnetic switch. The other arm is mounted to a pivotable member for setting the operating temperature of the thermostat. An anticipation heater is mounted on the bimetal member, between the arms and adjacent the return bend so as to efficiently transfer heat to a large portion of the bimetal element. The magnetic switch includes a pair of spaced stationary contacts and a movable contact structure, which is pivotable between extreme positions respectively engaging each of the stationary contacts. The movable contact structure includes a magnet, which moves in response to the relative positioning of an armature for pivoting the movable contact structure. The movable contact structure tends to rebound from its extreme positions. A damper of nonmagnetic material is loosely mounted about the magnet for movement therewith. There is sufficient lost motion between the magnet and damper that they collide approximately as the movable contact structure begins to rebound.

3,573,699

HIGH-VOLTAGE FUSE

Erwin Salzer, Waban, Mass., assignor to The Chase-Shawmut Company, Newburyport, Mass.

Filed Dec. 29, 1969, Ser. No. 888,257

Int. Cl. H01h 85/12, 85/14

U.S. Cl. 337-161

6 Claims

A subassembly for making a high-voltage fuse has a mandrel supporting a fusible element which is helically

wound around the same, and the mandrel is adapted to perform, in addition to its fuse-element-supporting function,



the function of controlling the arc voltage generated incident to blowing of the fuse.

3,573,700

ADJUSTABLE THERMOSTAT

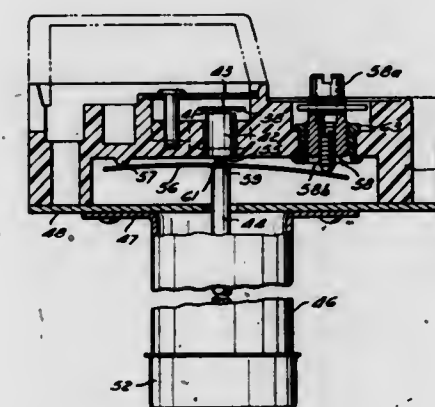
Donald J. Schmitt, Mansfield, Ohio, assignor to Therm-O-Disc Incorporated, Mansfield, Ohio

Filed Nov. 29, 1968, Ser. No. 779,680

Int. Cl. H01h 37/18, 37/24, 37/54

U.S. Cl. 337-347

31 Claims



Bimetal free disc thermostats are disclosed which provide means for modifying the operating temperature of the disc and means for modifying the operating temperature differential of the disc. The operating temperature of the thermostat is adjusted by applying an adjustable biasing force to the snap disc urging it toward one position of stability. Adjustment of the force changes the temperature of operation without materially altering the displacement characteristics of the disc or the operating differential. The stability of the disc calibration is also improved by the biasing force which dampens the snap action. Operating temperature differential is adjusted by a biasing force applied to the disc only when the switch contacts are open. This latter force causes the disc to operate along one curve when the switch is closed and a displaced curve when the switch is open, thereby adjustably reducing operating temperature differential of the disc. A switch operator is arranged so that the kinetic energy of a mass in motion is available to break any contact welds. Further conventional disc structures may be arranged to operate at higher temperatures with relatively small operating temperature differentials by applying properly selected biasing forces to such conventional discs.

3,573,701

ANTICIPATION DROOP COMPENSATION FOR SPACE THERMOSTATS

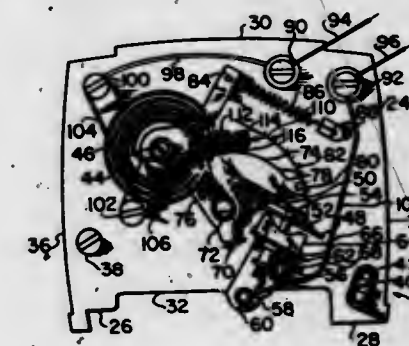
Marvin M. Graham, San Pedro; Frank J. Heinz, Garden Grove, and Lambert F. Craemer, Orange, Calif., assignors to Robertshaw Controls Company, Richmond, Va.

Filed Nov. 8, 1968, Ser. No. 774,254

Int. Cl. H01h 37/14, 37/20, 37/52

U.S. Cl. 337-378

24 Claims



A space thermostat comprising a first bimetal which controls the operation of an on-off electric switch, an anticipator disposed adjacent the first bimetal, and a compensating second bimetal having a delayed thermal response and disposed so as to compensate for the response of the first bimetal to the anticipator after it has been energized for a period of time greater than the delay of the compensating second bimetal. One embodiment utilizes the compensating second bimetal as a cam follower to mechanically rotate the first bimetal in a direction opposite to its deflection in response to the anticipator, and another embodiment utilizes the compensating second bimetal to move one of the contacts of the electrical switch to compensate for the effect on the other contact due to deflection of the first bimetal in response to the anticipator.

3,573,702

KEYED PLUG RESISTOR

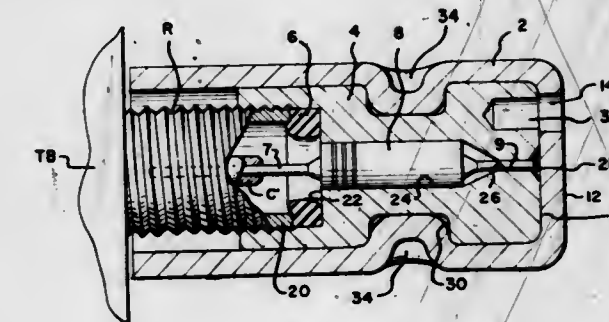
Michael Francis O'Keefe, Mechanicsburg, Pa., assignor to AMP Incorporated, Harrisburg, Pa.

Filed Nov. 7, 1969, Ser. No. 874,752

Int. Cl. H01c 13/00

U.S. Cl. 338-220

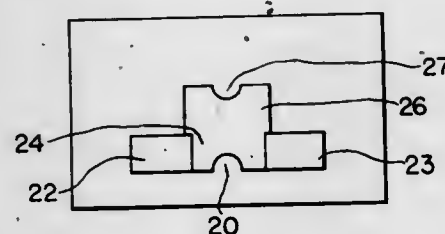
6 Claims



A plug device for use in conjunction with radio and television frequency circuits and coaxial cable applications is disclosed. The plug features a load resistor with one lead secured to the body of the plug and another lead adapted to insertably engage the contact-receiving member of a receptacle in a component. The resistor serves to load and subsequently balance the circuit to prevent signal distortion in house droplines or in the continuing remainder of the circuit. The plug also features a rotatable hardened shell which surrounds the body of the device and which rotates relative to the body. Keying means, including cooperating hole means between shell and body and a special keyed wrench device, provide a means by which the plug device may be removed, once installed. This rotatable shell feature in a plug device discourages illegal tampering with electronic equipment, such as theft of the cable signal by freeloaders.

3,573,703
RESISTOR AND METHOD OF ADJUSTING RESISTANCE
 Darnall P. Burks, Williamstown, and John P. Maher, North Adams, Mass.

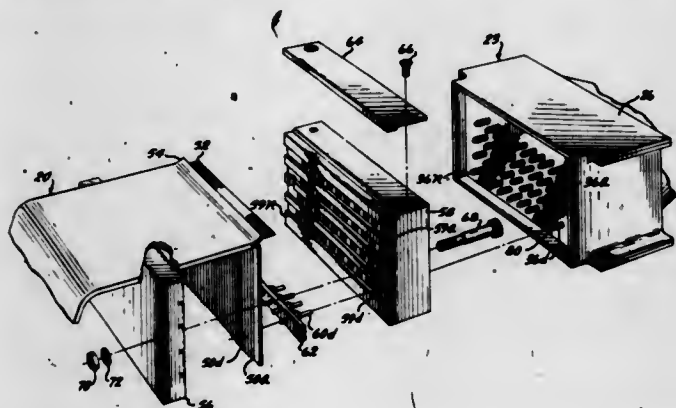
Filed May 9, 1969, Ser. No. 823,350
 Int. Cl. H01c 7/00
 U.S. Cl. 338—309 2 Claims



A resistor is formed on an insulating support between a pair of electrode terminals, a portion of the resistor extending out of the direct field established between the electrodes. The resistance value is precisely adjusted by removing resistor material in the fringing field.

3,573,704
FLATLINE CABLE IMPEDANCE MATCHING ADAPTER
 Carl R. Tarver, Phoenix, Ariz., assignor to General Electric Company

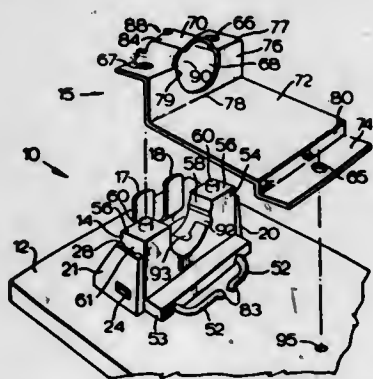
Filed June 23, 1969, Ser. No. 835,388
 Int. Cl. H01r 3/06
 U.S. Cl. 339—14 26 Claims



A connector is shown that is capable of interconnecting a shielded stripline flat cable adapter and another adapter for a group of conventional coaxial cables and at the same time maintaining an impedance match between the two adapters. The impedance match results from the geometric configuration of the attachment of the flat cable to its adapter member and from the use of an electrically conductive block member which provides a common "ground bus" for the shields.

3,573,705
BULB-MOUNTING ASSEMBLY
 Hugo Magi, Etobicoke, Ontario, Canada, assignor to Dominion Auto Accessories Limited, Toronto, Ontario, Canada

Filed Mar. 21, 1969, Ser. No. 809,099
 Int. Cl. H01r 3/06, 13/32
 U.S. Cl. 339—14 6 Claims

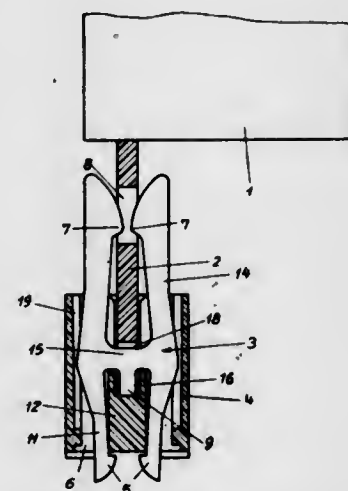


A socket assembly for a bulb, consisting of two nonconductive parts fastened together, and several

conductive members. One of the parts provides a base, while the other is upstanding from the base and defines a semicylindrical recess opening away from the base. A single-piece conductive ground strap stamped from sheet metal is provided to form a semicylinder to define with the recess a socket aperture. The ground strap also has a shield portion which shields from the bulb a space through which a wire can pass to be connected with a terminal at a location between the nonconductive parts.

3,573,706
CONNECTOR FOR MOUNTING A PRINTED CIRCUIT BOARD ON A MOUNTING BAR
 Roland Haberkorn, Tuttlingen, Germany, assignor to J. Hengstler K. G. Zahlerfabrick, Tuttlingen, Germany

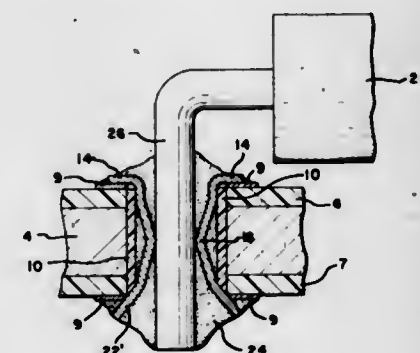
Filed Feb. 25, 1969, Ser. No. 802,053
 Claims priority, application Germany, Mar. 9, 1968, P 16 50 974.3
 Int. Cl. H01r 13/50; H05k 1/00
 U.S. Cl. 339—17 2 Claims



A device for connecting a printed circuit board to a mounting bar, includes a flat H-shaped leaf spring having first and second pairs of flat legs integral with a flat crosspiece having a depending flat peg. One pair of legs has opposing hooks which engage under an abutment in the bar. The other pair of legs has noses with camming faces engaging in a hole in the board. The crosspiece overlays the abutment while the peg engages in a slot in the abutment which also receives the edge of the board.

3,573,707
MOUNTING OF COMPONENTS ON METALLIC PRINTED CIRCUIT BOARDS
 Charles Edward Reynolds, Camp Hill, Pa., assignor to AMP Incorporated, Harrisburg, Pa.

Filed Sept. 5, 1969, Ser. No. 855,648
 Int. Cl. H01b 17/20; H05k 1/08
 U.S. Cl. 339—17 11 Claims

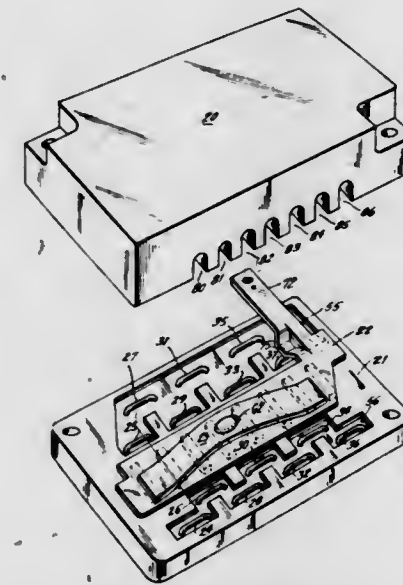


Component mounting system for metallic printed circuit boards having insulating coatings on their surfaces is disclosed in which the drilled hole in the metallic board is lined with a thin walled liner of plastic tubing. A metallic receptacle is positioned in the liner so that the liner electrically insulates the receptacle from the metallic portion of the printed circuit board. The lead wire from the

component is inserted into the receptacle and the board is solder-dipped to electrically connect the lead wire to a connecting path on the board. The heat from the soldering operation causes the liner to radially expand so that it achieves a tight fit in the hole. The board acts as a heat sink for the components mounted thereon but the board is electrically isolated from the components excepting where it is used as a grounding plane.

3,573,708
TAP BLOCK ASSEMBLY
 Charles J. Yarrick, Haddonfield, and Lee A. Davis, Audubon, N.J., assignors to I-T-E Imperial Corporation, Philadelphia, Pa.

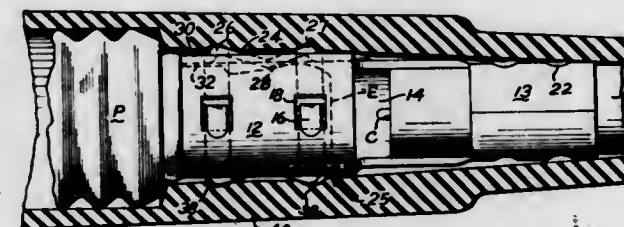
Filed July 22, 1969, Ser. No. 843,523
 Int. Cl. H01r 25/00
 U.S. Cl. 339—18 8 Claims



A tap block assembly for connecting one or more circuits to a common conductor by the insertion of a conductive plug. All components are captured between upper and lower molding halves which are secured together. A plurality of plug positions are provided in which the plug makes electrical contact with two respective circuits and a common conductor.

3,573,709
SPARK PLUG TERMINAL WITH ELLIPTICAL CROSS SECTION BARREL
 Howard A. Elliott, Detroit, Mich., assignor to Essex International, Inc., Fort Wayne, Ind.

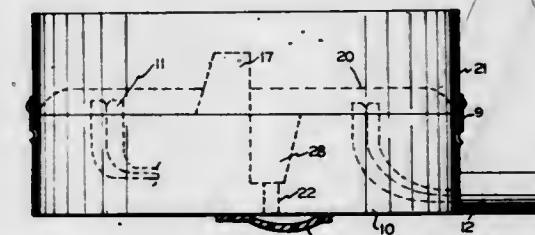
Filed Jan. 31, 1969, Ser. No. 795,634
 Int. Cl. H01r 11/22, 13/44; H01t 13/04
 U.S. Cl. 339—26 11 Claims



A terminal for a spark plug includes an elongated barrel having an elliptical cross section. A pair of elongated resilient spark plug electrode holding and contact tabs are positioned on the major axis of the barrel and the barrel is split adjacent the minor axis thereof to allow the barrel to flex. The elliptical shape of the barrel prevents overstraining and deformation of the tabs when the barrel is moved in a direction generally perpendicular to its axis, the electrode contacting the internal surface of the barrel in preference to the tabs.

3,573,710
MEANS AND METHOD FOR INSULATING CONNECTORS FROM AMBIENT ATMOSPHERE DURING MATING
 Delbert R. Wofford, Owensboro, Ky., assignor to Texas Gas Transmission Corporation, Owensboro, Ky.

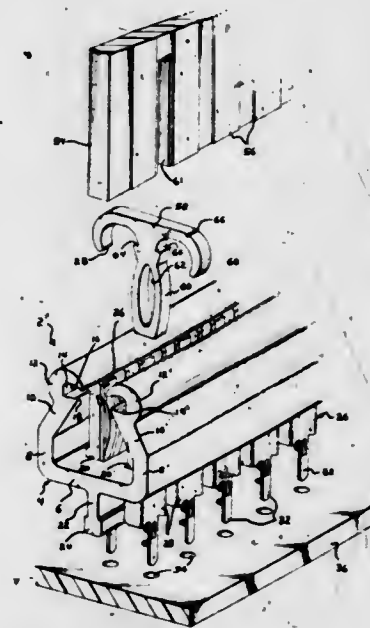
Filed Nov. 4, 1968, Ser. No. 773,048
 Int. Cl. H01r 13/52 6 Claims



Connector means in a hermetic embodiment provides for insulating connector terminals from ambient atmosphere such as salt water during mating by means of a covering of mastic insulation over exposed terminals. The mastic is displaced by frictional pressure during connection to provide a continuous insulation film surrounding all exposed electrical terminals.

3,573,711
MULTICONTACT ELECTRICAL CONNECTOR
 Homer Ernst Henschen, Carlisle, Pa., assignors to AMP Incorporated, Harrisburg, Pa.

Filed Nov. 25, 1968, Ser. No. 778,470
 Int. Cl. H01r 13/48, 13/64 8 Claims



Multicontact electrical connector comprises an elongated channel-shaped housing having a web and upstanding sidewalls, an axially extending rib being provided on the underside of the web. The sidewalls extend upwardly then inwardly towards each other and have, on their opposed inner surfaces, longitudinally extending channels adjacent to their upper ends. The contact terminals are mounted in the housing by inserting them through holes in the web on opposite sides of the rib so that intermediate portions of the terminals are supported by the web. The upper ends of the terminals have means thereon for interengagement with the grooves or channels on the inner surfaces of the sidewalls. The connector assembly comprising the housing and the terminal is supported on the printed circuit mother board by the lower portions of the terminals which are disposed

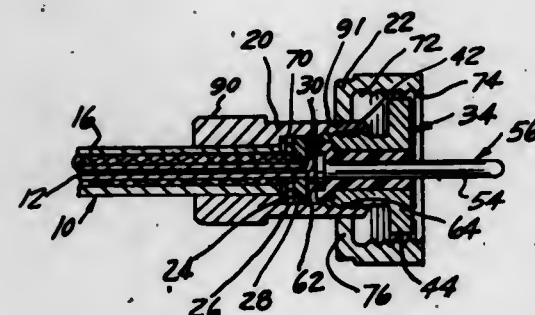
externally of the housing web. The rib functions to support the terminals against lateral movement when a mating element is inserted into the connector.

3,573,712 SOLDERLESS COAXIAL CONNECTORS

James W. Shirey, Lakeland, Mich., assignor to John Schroeder, Howell, Mich., a fractional part interest
Continuation-in-part of application Ser. No. 673,852, Oct. 9, 1967, now abandoned. This application Aug. 28, 1968, Ser. No. 769,773
Int. Cl. H01r 13/54

U.S. Cl. 339-89

6 Claims



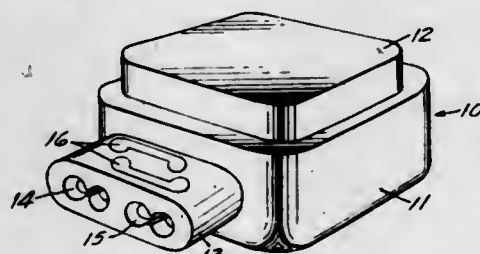
Solderless plug and union connectors for coaxial shielded cables, having a body member provided with a prong or alternately a union junction contacting the stripped end of the inner conductor bent in the form of a loop disposed in a transverse plane, the prong being electrically insulated from the remainder of the body which is electrically connected to the outer tubular braided conductor of the cable having its end clamped between a dielectric washer and a shoulder portion of a hollow sleeve member mechanically and electrically connected to the connector body.

3,573,713 CONNECTOR

Dennis J. Enright, and James H. Bazille, Jr., St. Paul, Minn., assignors to Minnesota Mining and Manufacturing Company, St. Paul, Minn.
Filed Nov. 21, 1968, Ser. No. 777,714
Int. Cl. H01r 11/20

U.S. Cl. 339-98

4 Claims



A connector for making solderless electrical contact between corresponding conductors of bonded wire-pairs each having two parallel conductors.

3,573,714 ELECTRICAL CONNECTOR

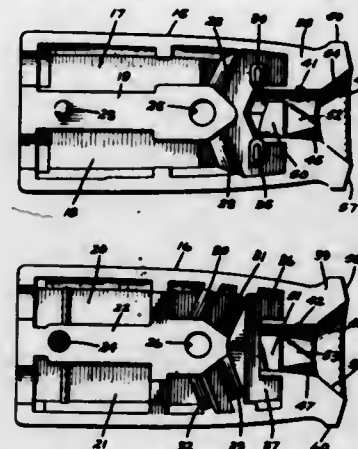
Prescott K. Turner, Fairfield, Conn., assignor to General Electric Company
Filed Mar. 27, 1969, Ser. No. 811,107
Int. Cl. H01r 13/56

U.S. Cl. 339-101

10 Claims

A connector, for an electric cord having at least two conductors enclosed in a jacket of noncircular cross section configuration, includes a body of electrical insulating material defining a passageway for entry of the cord into the connector. The passageway includes a first portion of cross-sectional size and shape complementary to an adjacent region of the cord jacket so as to intimately surround the adjacent region. The passageway also includes a second portion, outwardly of the first portion, which smoothly

changes in cross-sectional shape from that of the first portion so as to approach a circular cross-sectional shape. There is a



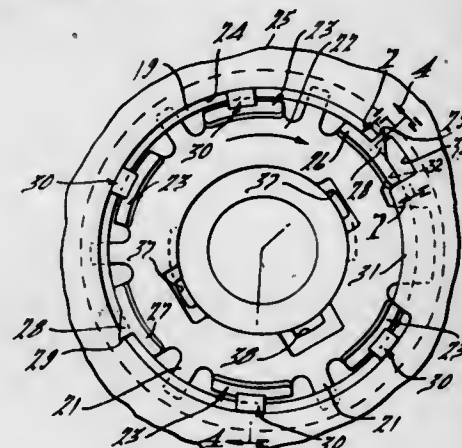
third portion, outwardly of the second portion, which is frustoconical in configuration.

3,573,715 PUSH-IN SOCKET

Don L. De Lano, Mt. Clemens, Mich., assignor to Microdot Inc., New York, N.Y.
Filed Dec. 19, 1968, Ser. No. 785,314
Int. Cl. H02b 1/02

U.S. Cl. 339-128

10 Claims

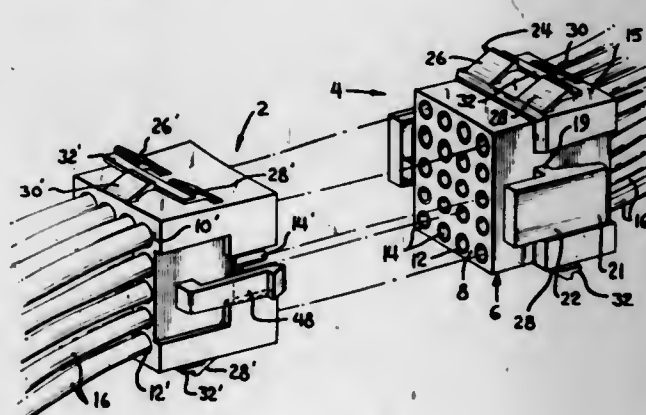


The socket is releasably applied in locked position to an apertured support by the act of directly pushing the socket into the aperture.

3,573,716
CONNECTOR HOUSING HAVING MEANS FOR MOUNTING IN A PANEL OPENING
William Joseph Garver, Harrisburg, Pa., assignor to AMP Incorporated, Harrisburg, Pa.
Filed Dec. 26, 1968, Ser. No. 786,954
Int. Cl. H02b 1/02

U.S. Cl. 339-128

4 Claims



Electrical connector housing has improved means for mounting in a panel opening comprising a pair of trusslike

structures on opposite sides of the housing. Each trusslike structure comprises diagonally extending beams and a ridge piece which extends between the beams and is integral with their ends. Mounting of the housing in a panel is achieved by inserting the housing through the opening until the surface portions of the panel which are adjacent to the opening engage the beams thereby to resiliently deform the trusslike structures until the ridge pieces of the structures are coplanar with the plane of the panel at which time the resiliently deformed beams urge the ridge pieces against the edges of the panel opening and maintain the housing in position.

ERRATUM

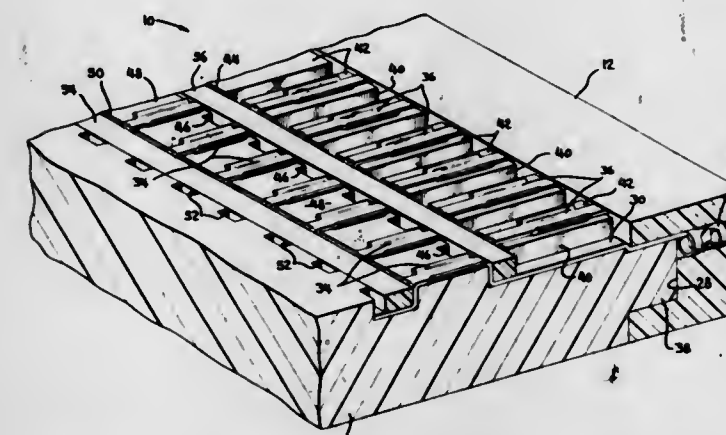
For Class 339-157 see:
Patent No. 3,573,850

3,573,717 CONNECTOR ASSEMBLY

Linn Stephen Lightner, Camp Hill, Pa., assignor to AMP Incorporated, Harrisburg, Pa.
Filed Nov. 12, 1968, Ser. No. 774,744
Int. Cl. H01r 13/50

U.S. Cl. 339-176

6 Claims

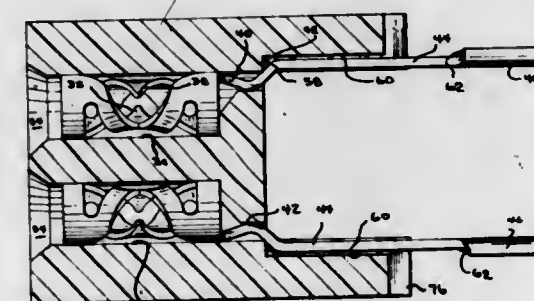


An electrical connector assembly is disclosed and comprises a contact housing and cooperating connector block. A plurality of electrical contacts are disposed in the housing and have tab means extending therefrom and overlying the connector block. Locating means are incorporated within the connector block for orienting the contact tabs to facilitate connection of the assembly with external circuitry.

3,573,718
MINIATURE ELECTRICAL CONNECTOR
Linn Stephen Lightner, Camp Hill, Pa., assignor to AMP Incorporated, Harrisburg, Pa.
Filed Sept. 16, 1968, Ser. No. 759,971
Int. Cl. H05k 1/07; H01r 13/50

U.S. Cl. 339-176

9 Claims



An electrical connector for a board or other panel member having wire conductors or printed circuitry associated therewith and comprising a housing formed of a dielectric material having a plurality of electrical contacts mounted therein. The contacts are provided with tab portions which

permit easy insertion into the housing and the housing is provided with shoulder means for cooperating with the tab portions to retain the contacts in position.

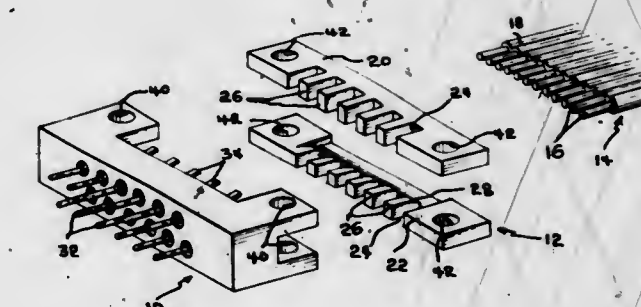
ERRATUM

For Class 339-177 see:
Patent No. 3,573,687

3,573,719
CONNECTOR FOR MULTIPLE-CONDUCTOR CABLE
Linn Stephen Lightner, Camp Hill, Pa., assignor to AMP Incorporated, Harrisburg, Pa.
Filed Sept. 30, 1968, Ser. No. 763,707
Int. Cl. H01r 33/94, 5/04

U.S. Cl. 339-196

9 Claims

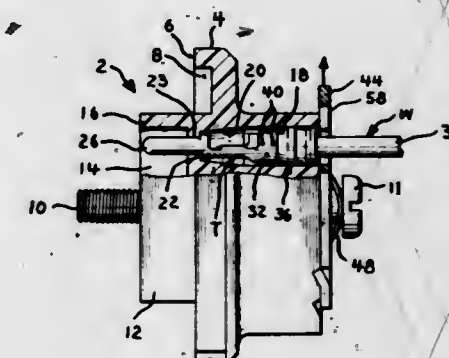


An electrical connector for multiple-conductor electrical cable having a housing containing a plurality of contact means having contact tabs extending therefrom. A header block is adapted to receive the multiple-conductor cable to orient the conductors in staggered relation along two planes. The header block is insertable within the housing whereby the contact tabs will electrically engage the conductors of the cable.

3,573,720
ELECTRICAL CONNECTOR
Charles Edward Reynolds, Camp Hill, Pa., assignor to AMP Incorporated, Harrisburg, Pa.
Filed Jan. 7, 1969, Ser. No. 789,454
Int. Cl. H01r 9/16

U.S. Cl. 339-217

6 Claims



A pair of insulating electrical connector blocks has a plurality of cavities having contact terminals therein. The terminals are sealed in their respective cavities against the passage of moisture or gas. The terminals are locked in their respective cavities by shutter plates on the rearward ends of the blocks. The shutter plates slidably move a limited amount in one direction to align the large ends of keyhole slots with each cavity so that terminals may be inserted into the cavities; the shutter plates slidably move a limited amount in the other direction so that the small ends of the keyhole slots straddle the lead wires where they leave the terminals and lock the terminals in the cavities.

3,573,721 ELECTRICAL TERMINAL HAVING CHANNEL-SHAPED CONTACT SECTION

Wladimiro Teagno, and Carlo Masino, Turin, Italy, assignors to AMP Incorporated, Harrisburg, Pa.

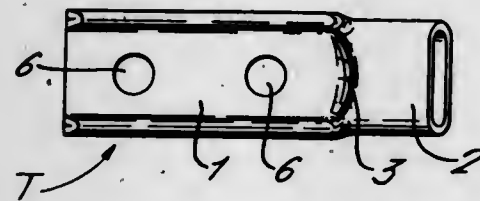
Filed Jan. 15, 1969, Ser. No. 791,269

Claims priority, application Italy, Jan. 17, 1968, 7637B/68

Int. Cl. H01r 5/08

U.S. Cl. 339-223

2 Claims



A tube terminal for bus bar application has an oval crimping ferrule for receiving twin wires and a tongue of shallow channel section of width substantially equal to that of the ferrule.

3,573,722 REAR ENTRY CONTACT FOR A LAMP BULB SOCKET

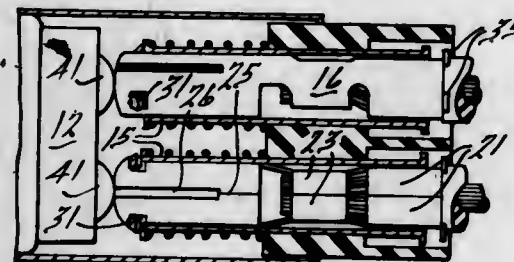
Don L. DeLano, Mt. Clemens, and Joseph W. Horton, Pontiac, Mich., assignors to Microdot Inc., New York, N.Y.

Filed Feb. 26, 1969, Ser. No. 802,405

Int. Cl. H01r 13/06

U.S. Cl. 339-252

7 Claims



The socket has one or a plurality of spring pressed sleeves for receiving a conducting clip on the end of one or more conductors which is insertable from the rear end to project beyond and lock to the forward end of the sleeve and form a terminal head which engages a contact of a light bulb.

3,573,723 METHOD AND APPARATUS FOR SEISMIC PROSPECTION

Dominique Michon, Paris, France, assignor to Compagnie Generale de Geophysique, Paris, France

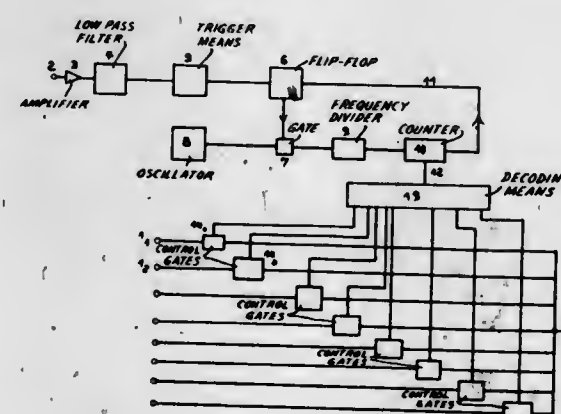
Filed Dec. 24, 1968, Ser. No. 786,600

Claims priority, application France, Jan. 12, 1968, 135736

Int. Cl. G01v 1/00

U.S. Cl. 340-15.5

2 Claims



A seismic prospection system of the type resorting to a plurality of geophones or groups of geophones feeding a

common recording means to obtain average figures wherein the strays are eliminated by the successive transient disconnections of the different geophones with reference to a common recording means as provided by a detector located ahead of the geophones so that the incoming strays impinging on the detector produce pulses disconnecting the successive geophones during an operative cycle.

3,573,724 TRAFFIC FLOW DETECTING APPARATUS

Katsuhiro Komorida, Yokohama, Japan, assignor to Matsushita Electric Industrial Co., Ltd., Kadoma-shi, Osaka, Japan

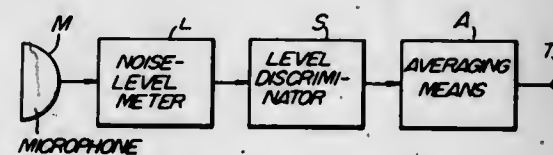
Filed July 10, 1967, Ser. No. 652,158

Claims priority, application Japan, July 15, 1966, Nov. 15, 1966, Dec. 2, 1966, 46723; 75661; 79471

Int. Cl. G08g 1/09, 1/01

U.S. Cl. 340-38

5 Claims



A traffic flow detecting apparatus in which a noise delivered from a running vehicle is utilized to derive an information for the signal control of an actuation-responsive traffic signal device. The traffic flow detecting apparatus is more economical and practical than the treadle type, inductance loop coil type and radar type.

3,573,725 RESILIENT ACCUMULATOR RESERVOIR WITH FAILURE SWITCH

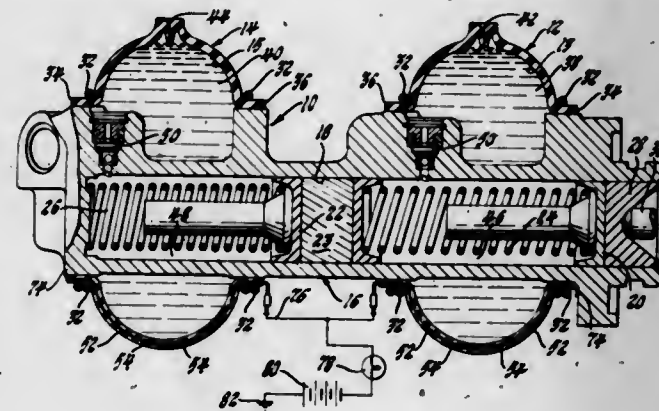
Ronald L. Shellhauss, Vandalia, Ohio, assignor to General Motors Corporation, Detroit, Mich.

Filed June 25, 1969, Ser. No. 836,238

Int. Cl. B60q 1/08

U.S. Cl. 340-60

5 Claims



A fluid accumulator reservoir including metallic conductors slidably embedded within the resilient walls defining the reservoir, the conductors being positioned to indicate whether a desired amount of fluid exists in the reservoir. When the reservoir is properly filled the resilient material is expanded sufficiently to separate the conductors opening a signal circuit. Filling of the reservoir and consequent expansion of the resilient walls places them in tension generating a low residual pressure in the fluid system. This pressure acts to provide a constant low-pressure leak test of the system as it will force the fluid outwardly through any leakage passages. Should a loss of fluid occur, the resilient reservoir material contracts engaging the conductors energizing the signal circuit. One form of embodiment includes blade-type conductors engaging both upon the

occurrence of sufficient expansion and contraction of the reservoir completing a circuit indicating overfilled or underfilled conditions.

3,573,726 PARTIAL MODIFICATION AND CHECK SUM ACCUMULATION FOR ERROR DETECTION IN DATA SYSTEMS

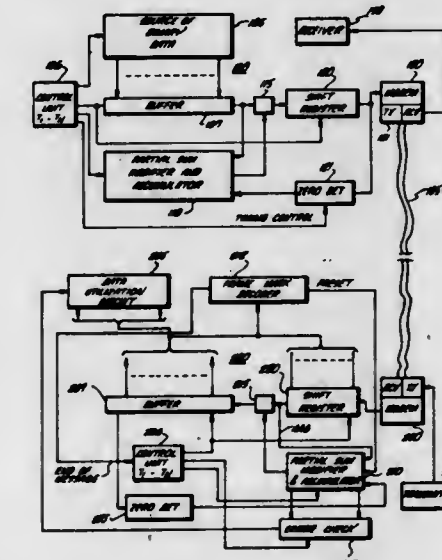
Leroy D. Towell, and Harry K. Scott, Dallas, Tex., assignors to Computer Industries, Inc., Los Angeles, Calif.

Filed Sept. 26, 1968, Ser. No. 762,725

Int. Cl. G08c 25/00; H04i 1/10

U.S. Cl. 340-146.1

20 Claims



This invention relates, in general, to error detection for blocks of binary data, and more particularly relates to the transmission of a uniquely modified and check sum accumulated error identifying word, together with detection circuitry at the receiver location which senses the unique word and thereby verifies or negates that a block of data was correctly transmitted and received.

In one preferred embodiment of the invention disclosed herein, a method and apparatus is disclosed for generating at a transmitting station, an error-checking word. The error-checking word is generated by making, in response to random binary bit sequences, unique modifications in its content. For example, one such unique modification in the word's content is made in response to the number of frames in the block of data to be transmitted. Another unique modification of the error word's content is made each time a check sum on a bit-by-bit basis exceeds the modulus, i.e. total bit-plus-bit capacity available in the error word. The error word's content is subject to yet another unique modification, in response to the occurrence of a multibit word, within an overall block of data words, containing all ZERO's.

In one particular embodiment the complement of this error word is generated and sent to the receiver as the final word after a data block has been transmitted. Another essentially identical error-check summing circuit at the receiver station accumulates another error word. The receiver error-check word, when summed with the complemented error-check word from the transmitter has a predictable total when all data in the block has been transmitted and received error-free. If a sum other than that predicted is obtained at the receiver, then the received data contained an error.

3,573,727 FEEDBACK ARRANGEMENT FOR MINIMIZING A SYSTEM PARAMETER

Stanley L. Freeny, Middletown, N.J., assignor to Bell Telephone Laboratories, Inc., Murray Hill, Berkeley Heights, N.J.

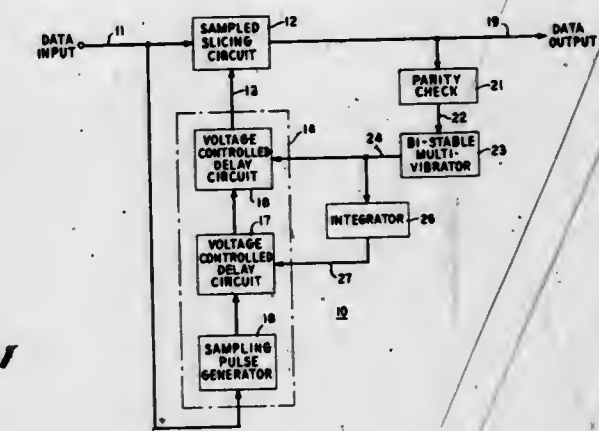
Filed Nov. 4, 1968, Ser. No. 773,014

Int. Cl. H03k 5/18; H04i 1/10; H04b 3/46

U.S. Cl. 340-146.1

6 Claims

In a feedback circuit, the time at which a slicing circuit samples a received data signal is controlled to minimize the



range. The output of the bistable multivibrator is integrated to provide a signal which controls the sampling time over a wider range.

3,573,728 MEMORY WITH ERROR CORRECTION FOR PARTIAL STORE OPERATION

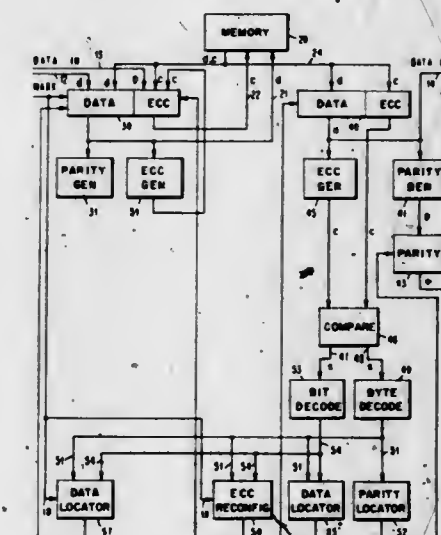
Eugene Kolankowsky, Pleasant Valley, and August K. Pattin, Jr., Wappingers Falls, N.Y., assignors to International Business Machines Corporation, Armonk, N.Y.

Filed Jan. 9, 1969, Ser. No. 790,142

Int. Cl. H04i 1/10; H04b 3/46; G08g 25/00

U.S. Cl. 340-146.1

10 Claims



This invention provides coding circuits for storing words in a memory in an error correction code and for operating with an associated system in which data is provided with error detecting parity check bits. The coding circuits include means for locating an incorrect bit of a memory word and for updating the error correction bits to correspond to the corrected word.

3,573,729 ERROR DETECTION IN MULTILEVEL TRANSMISSION

John F. Gunn, West Newbury, and John A. Lombardi, Haverhill, Mass., assignors to Bell Telephone Laboratories, Inc., Murray Hill, Berkeley Heights, N.J.

Filed May 29, 1969, Ser. No. 829,024

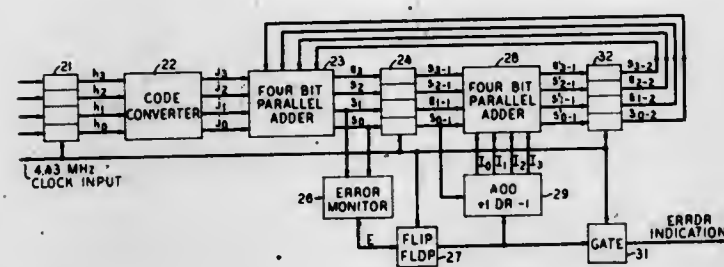
Int. Cl. H04b 1/66; G08c 25/00

U.S. Cl. 340-146.1

6 Claims

Error detection in multilevel partial response correlation code transmission is achieved by maintaining separate

running sums of discrete sets of related pulses. Each sum is monitored for violation of particular constraints means of manually settable slides so that only when the latter slides are properly set in accordance with a coded number



characteristic of the code and both error indicator and sum correction signals are generated.

3,573,730

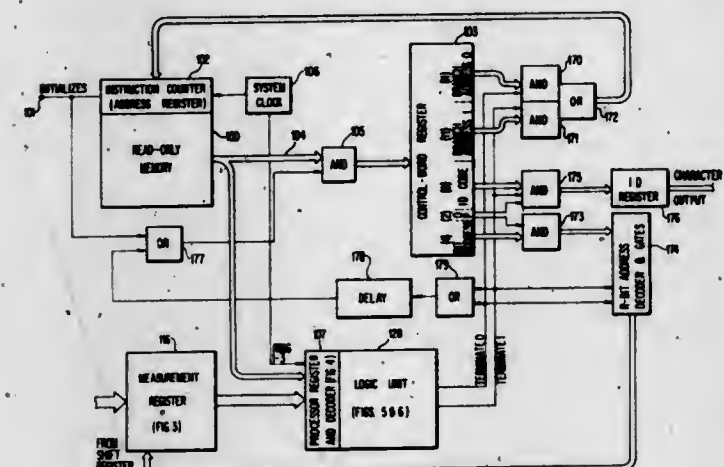
STORED LOGIC RECOGNITION DEVICE

Douglas R. Andrews, and Allan J. Atrubin, Rochester, Minn., assignors to International Business Machines Corporation, Armonk, N.Y.

Filed Oct. 15, 1969, Ser. No. 866,654
Int. Cl. G06k 9/06

U.S. Cl. 340-146.3

8 Claims



A stored logic character recognition system is disclosed that includes a read-only memory in which is stored a set of functions, the evaluation of which leads to the classification of a given binary pattern. A measurement register performs logical operations on the pattern data to generate a plurality of measurement words. An identification sequence for each character is begun by fetching a predetermined word from the read-only memory to a control-word register. Succeeding words are then fetched to a processor register and decoder where they are interpreted as terms of a logical function. The processor evaluates the logical function against the measurements in the measurement register with the final evaluation of a single logical function resulting in the selection of one of two branch addresses in the control-word register. By an iterative or multilevel type of operation, measurements of the character image are built up until an identification is achieved.

3,573,731

DEVICE FOR DETERMINING AUTHENTICITY OF A CREDIT CARD OR THE LIKE

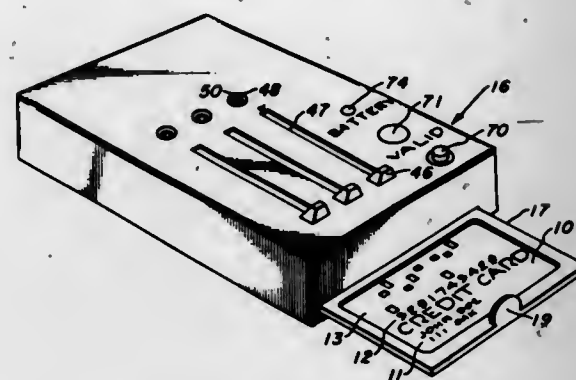
Fred N. Schwend, Arcadia, Calif., assignor to Clary Corporation, San Gabriel, Calif.

Filed June 17, 1968, Ser. No. 737,488
Int. Cl. G06k 7/00; H01h 43/08, 9/00

U.S. Cl. 340-149

8 Claims

A device for insuring authenticity of a credit card or the like having holes therein representing by their positions and size a particular identification number, such as part of a credit card holder's account number, in which the card differentially sets slides to contact certain of a series of contacts connected in random coded manner to a second series of contacts. The latter contacts are selectively placed in electrical circuit with an authenticity indicating device by



known only to the proper card holder, will a complete circuit be made to the indicating device.

3,573,732

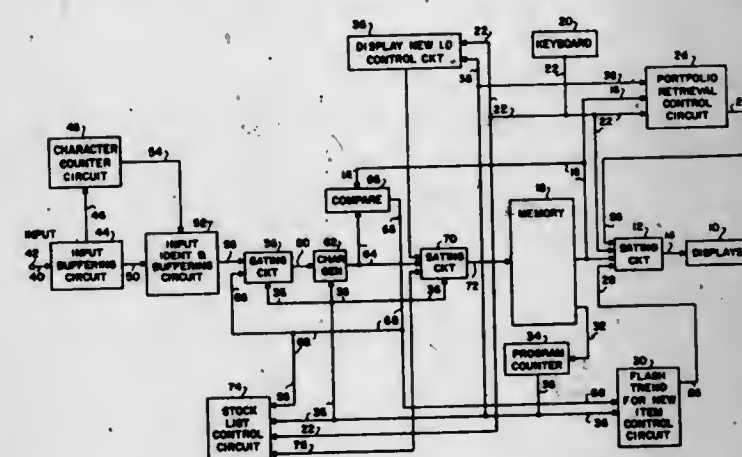
INFORMATION STORAGE AND DISPLAY SYSTEM

Carl Greenblum, Stamford, and Robert L. Metz, Nichols, Conn., assignors to The Bunker-Ramo Corporation, Stamford, Conn.

Filed Feb. 5, 1968, Ser. No. 703,052
Int. Cl. G08b 11/00

U.S. Cl. 340-154

74 Claims



An information storage and display system having a memory element in which items of information to be displayed on a plurality of display devices are stored. The information may be displayed in any one of a plurality of different forms with the information in a given form which is to be displayed on a given display device being stored in an identifiable address position of the memory element. Information of various types is sequentially applied to the system and is selectively stored, under control of item and form selecting means, in positions of the memory element. Also provided are means for selecting a display form for a given display device and means operable in response to the selecting means for gating information from the appropriate position in the memory element to control the display on a display device.

3,573,733

INFORMATION RETRIEVAL SCANNING SYSTEM

Troy L. Pegram, Wabash, Ind., assignor to Honeywell Inc., Minneapolis, Minn.

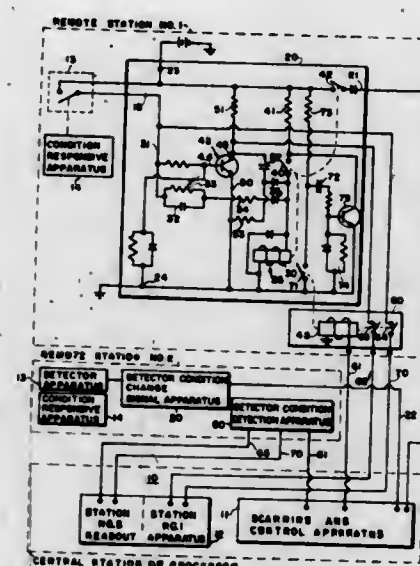
Filed Dec. 23, 1968, Ser. No. 786,346
Int. Cl. H04g 9/00

U.S. Cl. 340-163R

2 Claims

An information retrieval scanning system for indicating a change in the position of each of a plurality of remote station switches at a central station wherein upon a change in the position of any one of the remote station switches, a scan command signal from that particular station is provided. Scanning apparatus in the central station seeks out the

station providing the scan command signal to energize Cathode Ray Tube by character generating circuits. The apparatus for responding to the position of the switch at the basic information is inserted in front of the displayed information and the whole is transferred to a secondary line



central station and cancelling the scan command signal of that station.

3,573,734

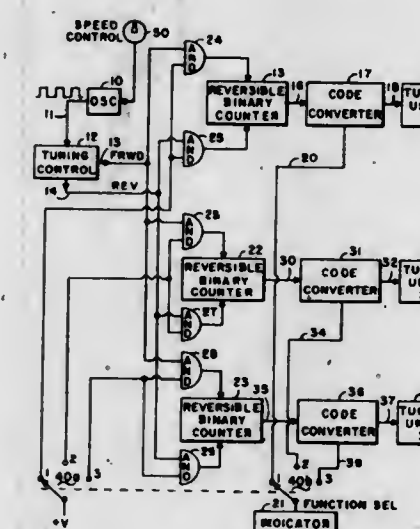
SOLID STATE TOUCH-TUNE SYSTEM

Winston F. Williams, and David F. Keese, Cedar Rapids, Iowa, assignors to Collins Radio Company, Cedar Rapids, Iowa

Filed Apr. 9, 1969, Ser. No. 814,779
Int. Cl. G01r 23/10; H03b 3/04; H03k 21/18

U.S. Cl. 340-168

10 Claims



Remote tuning system for a plurality of electronic services employs a common tuning control, function selector, and indicator. Tuning is accomplished by selectively applying pulses of variable repetition rate to electronic counter and code converting means the output of which causes a selected electronic service to be step-tuned at a rate determined by repetition rate of the oscillator.

3,573,735

PRODUCTION OF JUSTIFIED CODED TAPE FOR PAGE PRINTING

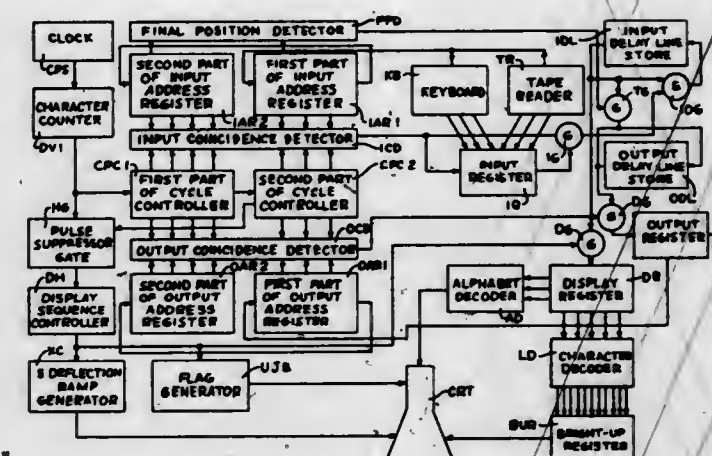
Gordon A. Clark, Epsom Downs, England, assignor to Purdy & McIntosh (ED) Limited, London, England

Filed June 8, 1967, Ser. No. 644,631
Int. Cl. G11b 27/00

U.S. Cl. 340-172.5

4 Claims

Equipment for editing electrically coded page printing information which accepts an input from a keyboard (or tape reader) and stores coded information in an ultrasonic delay line. While the information is circulating, it is displayed on a



ready to be fed out to a tape punch or type-setting machine. The spacing or justifying information is inserted directly in the second delay line or into the output stage.

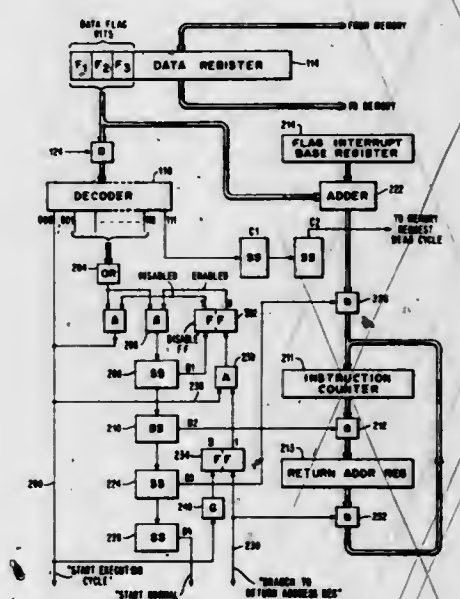
3,573,736

INTERRUPTION AND INTERLOCK ARRANGEMENT
Hans P. Schlaeppli, Chappaqua, N.Y., assignor to International Business Machines Corporation, Armonk, N.Y.

Filed Jan. 15, 1968, Ser. No. 697,766
Int. Cl. G06f 9/18

U.S. Cl. 340-172.5

3 Claims

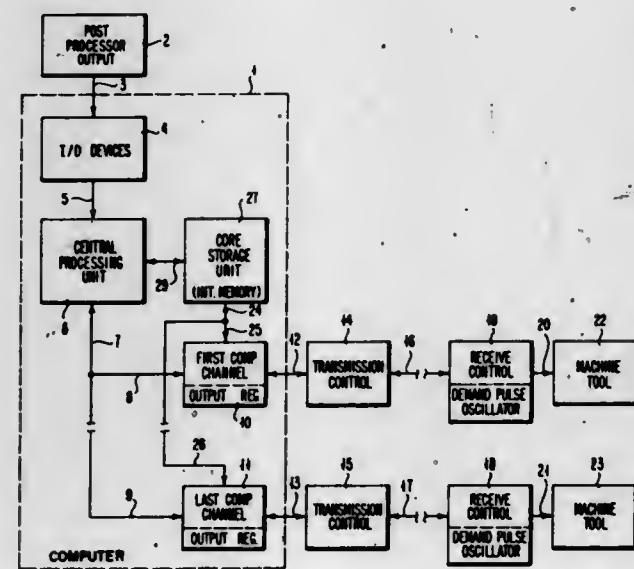


A program control and interlock arrangement is shown wherein a chosen state of a given number of flag bits associated with data words processed by a first program are used to selectively activate one of several other programs whenever the first program encounters a data word in such chosen state, and which also permits in a multiprogrammed and/or multiprocessing system, the locking out of designated data sets from access by a second processor or process while it is still being accessed by a first processor. The signals which control the aforementioned locking out function are provided by the same data flag bits as those that control the activating of the above-mentioned other programs. These same flag bits may be employed to set and reset the interlock signals as appropriate for the lockout function to provide the mutual interlocking required to protect several concurrent processes from operating on the same data set.

3,573,737
REDUCTION OF PROCESSOR LOADING IN A DEMAND COMPUTER SYSTEM FOR MACHINE TOOL CONTROL
 Jack Rosenberg, Pacific Palisades, Calif., assignor to International Business Machines Corporation, Armonk, N.Y.

Filed Jan. 15, 1968, Ser. No. 697,847
 Int. Cl. G05b 19/18; G06f 15/46
 U.S. Cl. 340-172.5

7 Claims



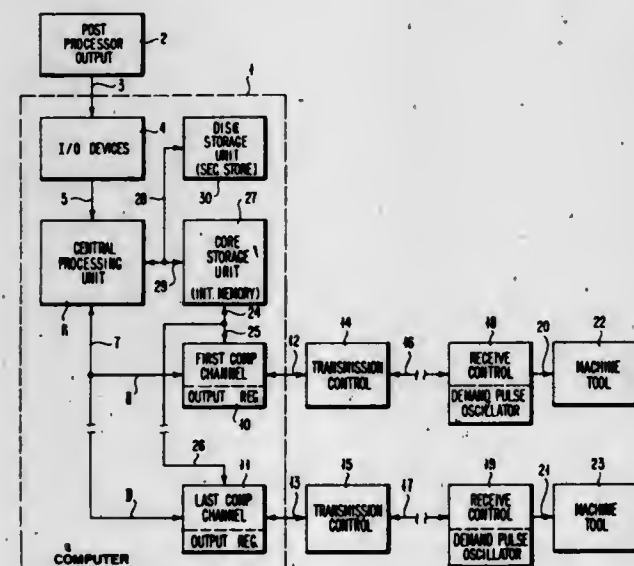
A system for reducing the loading of a processor and amount of core storage required when a processor is used to calculate command words for controlling the slides of a machine tool and a constant frequency oscillator external of the machine tool is used to gate the command words from core storage to the machine tool. The output of the oscillator is applied to a preset counter which has been loaded with a number equal to the reciprocal of the quantity comprising the desired feed rate over the maximum feedrate and ones commanding movement are entered into the bit position associated with the axis to be moved the furthest during the cutting of the segment.

3,573,738
DEMAND COMPUTER SYSTEM FOR MACHINE TOOL CONTROL

David M. Bottles, West Los Angeles; Royal H. Daw, Sherman Oaks, and Jack Rosenberg, Pacific Palisades, Calif., assignors to International Business Machines Corporation, Armonk, N.Y.

Filed Jan. 15, 1968, Ser. No. 697,849
 Int. Cl. G05b 19/18; G06f 15/46
 U.S. Cl. 340-172.5

9 Claims



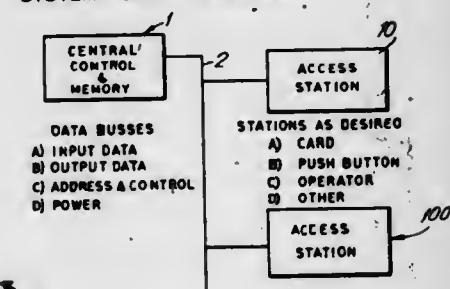
A system for controlling a machine tool or other precise mechanism having a number of slides in which system a sequence of command words for moving each of the slides during the cutting of a segment is calculated and stored in a

core storage unit and gated out from core under control of an external demand oscillator to the servosystem of the associated machine tool.

3,573,739
AUTOMATIC REGISTRATION SYSTEM
 Richard A. Zeitlin, Bronx, N.Y., assignor to Autoelectron Corp., New York, N.Y.
 Filed Apr. 22, 1968, Ser. No. 722,980
 Int. Cl. G06f 3/00, 15/24; G11b 13/00
 U.S. Cl. 340-172.5

11 Claims

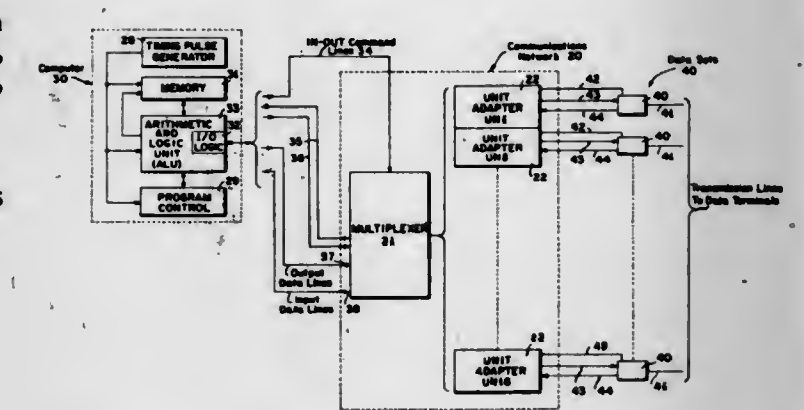
SYSTEM BLOCK DIAGRAM



A computer compatible system with apparatus for the automatic registration of status information of persons or articles; the automatic registration and assignment of a portable device to a particular person or place; the registration of ancillary data pertaining to persons or articles; and the retrieval of all such information and data; wherein access to a remote memory device is provided at a plurality of locations, each location independently operable through a time multiplexed scanning system.

3,573,740
COMMUNICATION MULTIPLEXER FOR ON-LINE DATA TRANSMISSION
 Melvyn S. Berger, Canoga Park, and Bob J. Baker, Hawthorne, Calif., assignors to The National Cash Register Company, Dayton, Ohio
 Filed July 3, 1968, Ser. No. 742,354
 Int. Cl. G06f 3/00; H04j 3/00
 U.S. Cl. 340-172.5

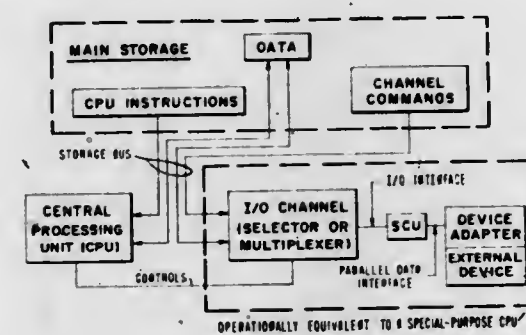
16 Claims



A communications system comprised of a multiplexer and a plurality of unit adapters for transferring data characters between a high speed digital computer and a plurality of relatively low speed data transmission devices operating online with the computer. A scanner circuit included in the multiplexer provides for sequential servicing, in turn, each of the unit adapters for transferring the data characters. The scanner circuit may be interrupted at any time such that the computer can transfer a function selector character to any of the unit adapters, the character determining whether the unit adapter will thereafter operate in an input or output mode. Monitor and control logic in each unit adapter has circuitry therein for detecting an overload condition resulting from online operation of the computer system during an input mode of operation, thereby detecting any loss of data in its real time operation and enabling the computer to monitor the circuits to correct the loss of data caused by the overload condition.

3,573,741
CONTROL UNIT FOR INPUT/OUTPUT DEVICES
 Bruce D. Gavril, New York, N.Y., assignor to International Business Machines Corporation, Armonk, N.Y.
 Filed July 11, 1968, Ser. No. 744,075
 Int. Cl. G06f 3/00
 U.S. Cl. 340-172.5

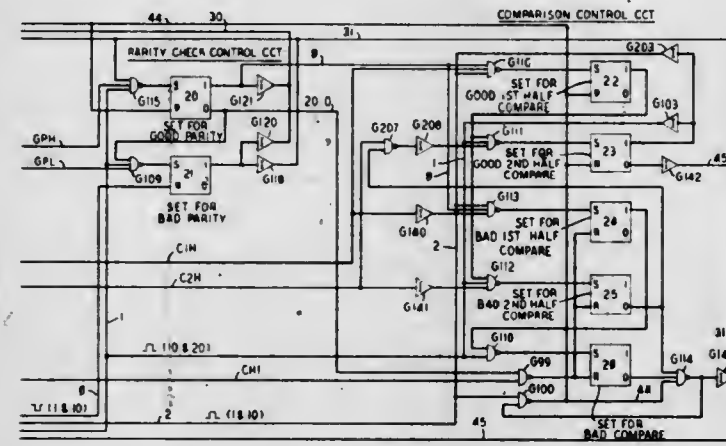
13 Claims



A versatile, general purpose control unit is provided for controlling a wide variety of digital computer peripheral devices and systems and for facilitating their attachment to the complex system I/O interface. Programmable digital interfaces and control circuitry are provided in the control unit for affecting a wide variety of external device operations in addition to conventional data read and data write functions. Means are further provided for directly interconnecting two peripheral devices through the control unit without computer system activity during data transfer; this eliminates unnecessary interference with the system memory or with the I/O channel. An additional aspect allows the attached peripheral equipment to change the effective system address of the control unit in order to more effectively utilize control unit facilities.

3,573,742
DATA REGISTRATION SYSTEM
 George Riddell, Lincroft, N.J., assignor to Bell Telephone Laboratories, Inc., Murray Hill, Berkeley Heights, N.J.
 Filed Aug. 6, 1968, Ser. No. 750,562
 Int. Cl. G06f 3/04
 U.S. Cl. 340-172.5

16 Claims

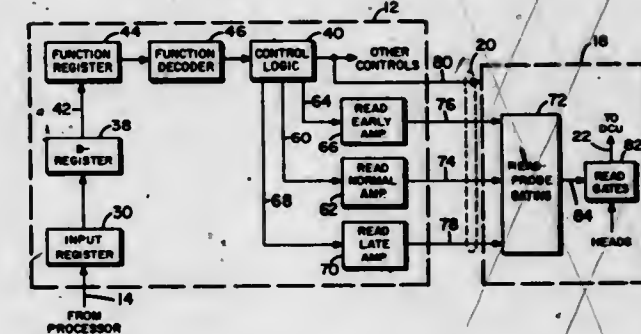


A register translator circuit is disclosed which receives plural order binary data from a time division pulse code modulation system and in response thereto, (1) registers the data in storage flip-flops, (2) checks the data for parity, (3) compares the registered data with that subsequently received on a retransmission of the same information, and (4) if the comparison test passes, translates the registered information into a plurality of 1-out-of-N bits. If either the parity or comparison test fails, the input flip-flops are reset and the above operations are repeated until identical data with good parity is received on two successive transmissions.

Each data word is represented by a timewise staggered sequence of signals not all of which are overlapping. Because all signals representing a word do not overlap, a comparison circuit is provided which is divided into a first and a second half each of which is individual to a corresponding portion of the data word received on successive transmissions.

3,573,743
PROGRAMMABLE TIMING CONTROLS FOR MAGNETIC MEMORIES
 Edward P. Hadd; Merlin L. Hanson, St. Paul, and Anthony R. Talarczyk, Bloomington, Minn., assignors to Sperry Rand Corporation, New York, N.Y.
 Filed Sept. 30, 1968, Ser. No. 763,643
 Int. Cl. G05b 19/00
 U.S. Cl. 340-172.5

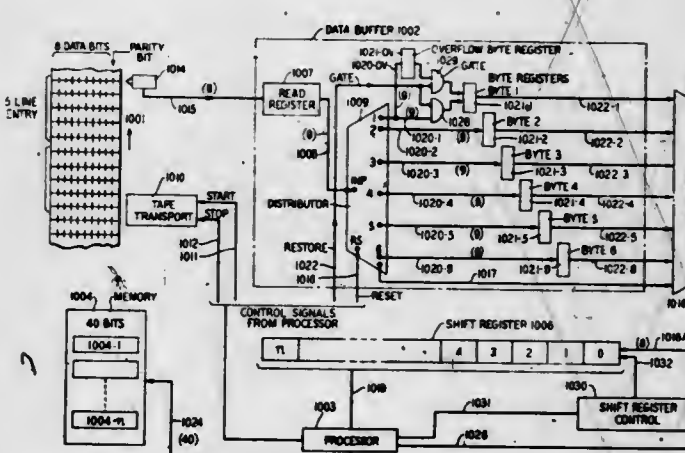
15 Claims



A magnetic memory access control system including programmable read-probe timing control circuitry for programmably changing the time of occurrence of read-probe pulses in response to programmed control instruction is described. The system includes a data processor capable of issuing control instructions for controlling the operation of a magnetic memory device. An access control unit is coupled intermediate to the data processor and the magnetic memory device, and operates to translate the control instructions. One class of control instruction defines the time of occurrence of read-probe pulses, for gating read amplifiers in the magnetic memory device at the programmably selected times.

3,573,744
DATA BUFFER SYSTEM FOR TRANSFERRING INFORMATION FROM A FIRST TO A SECOND STORAGE MEDIUM
 Livio A. Rigazio, Eatontown, N.J., assignor to Bell Telephone Laboratories, Inc., Murray Hill, Berkeley Heights, N.J.
 Filed Nov. 1, 1968, Ser. No. 772,515
 Int. Cl. G06f 3/06; G11c 19/00
 U.S. Cl. 340-172.5

22 Claims



A data buffer and converter is disclosed which receives information from a first storage medium such as a magnetic tape, converts it into a different format, and enters the converted data into a second storage medium, such as the memory of a stored program machine. Each entry on the tape comprises n -lines of m -bits each. The data read from each line of an entry is transferred to a different one of a plurality of m -bit registers. Subsequently, by means of instrumentalities including a shift register, the data from the plurality of m -bit registers is rearranged into a single word having $n \times m$ -bits and entered into the second storage medium.

and accumulator, and a test sequencer for selectively connecting a signature waveform from each of the circuit modules to the load input of the accumulator and selectively reading out from the memory a binary number which is the correct class identifier for the module from which a signature waveform is being obtained for analysis.

ERRATA

For Classes 308—132 and 340—172.5 see:
Patent Nos. 3,573,510 and 3,573,581 thru 3,573,556

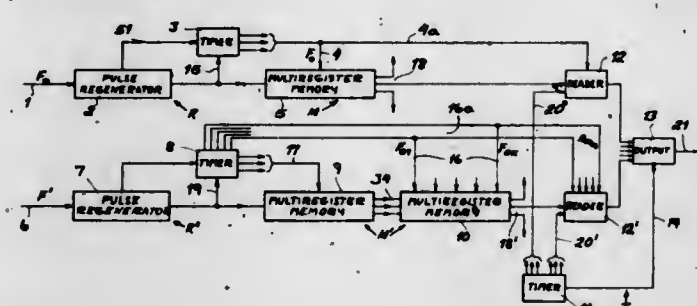
3,573,752

PULSE-CODE-MODULATION SYSTEM WITH
CONVERGING SIGNAL PATHS

Evangelo Lyghounis, Milan, and Isidoro Poretti, Castiglione Olona, Italy, assignors to Societa Italiana Telecomunicazioni Siemens S.p.A., Milan, Italy
Filed July 1, 1969, Ser. No. 838,162
Claims priority, application Italy, July 3, 1968, 18,518/68
Int. Cl. H04j 3/12

U.S. Cl. 340—172.5

6 Claims



At a point of convergence of several transmission paths, each carrying a multiplicity of channels in the form of interleaved code signals, recurring at different repetition frequencies, selected channels from different incoming paths are sampled at a rate equal to or higher than the highest repetition frequency among these channels for transfer to an outgoing transmission path. Whenever a channel is resampled before arrival of the next code signal thereof, a special control pulse indicates this fact and actuates a discriminating circuit at the remote end of the outgoing path to prevent the registration of a spurious code signal in a memory section assigned to such channel, thereby making the mean rate of registration equal to the original repetition frequency of the signals constituting this channel. The signals so stored can be read out, at an accelerated rate (if necessary), for further retransmission in the aforesaid way or for decoding at a terminal.

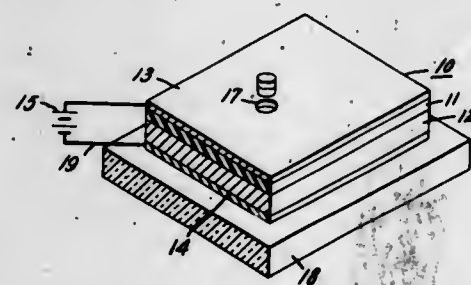
3,573,753

INFORMATION STORAGE AND RETRIEVAL
EMPLOYING AN ELECTRON BEAM

David W. Skelly, Ballston Lake; Robert F. Koczewski; James F. Burgess, and Sterling P. Newberry, Schenectady, N.Y., assignors to General Electric Company
Filed Aug. 1, 1968, Ser. No. 749,457
Int. Cl. G11c 11/34

U.S. Cl. 340—173

14 Claims



A storage medium is described wherein coded information is destructively written by selectively inducing breakdown in a threshold biased capacitor having an electron sensitive variable conductivity layer positioned therein. In one specific

embodiment, a hexachlorobutadiene dielectric layer and a juxtaposed lead oxide semiconductive layer are sandwiched between a tin oxide electrode and an electron transparent aluminum electrode. After threshold biasing the structure in a direction opposing conductivity in the lead oxide layer, a 10 kv. electron beam is selectively penetrated into the layer of lead oxide to induce conductivity therein thereby shifting the biasing voltage division in the storage medium to effect a localized dielectric breakdown in the hexachlorobutadiene. The dielectric breakdown in the hexachlorobutadiene selectively ruptures both the dielectric layer and the aluminum electrode thereover producing 10—50 mil diameter apertures at points of electron beam irradiation. Information is readout by reverse biasing the storage medium and selectively scanning the medium with an electron beam. In a preferred embodiment, a semiconductive wafer is substituted for the tin oxide electrode to permit readout of the recorded information unimpeded by capacitive coupling between the electrodes.

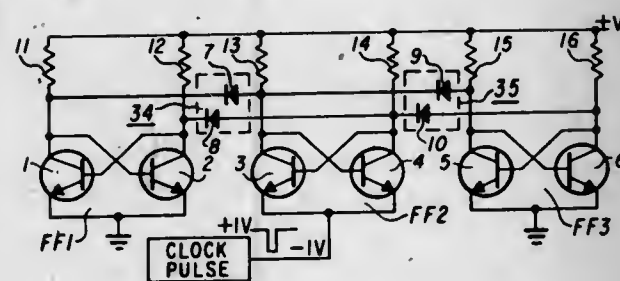
3,573,754

INFORMATION TRANSFER SYSTEM

Jerry D. Merryman, Dallas, Tex., assignor to Texas Instruments, Incorporated, Dallas, Tex.
Filed July 3, 1967, Ser. No. 650,832
Int. Cl. G11c 11/40; H03k 3/286

U.S. Cl. 340—173

7 Claims



An information transfer system for transferring binary information from a first storage unit to a second storage unit in successive steps utilizing an intermediate storage unit and gates differently responsive to various conditions of an energizing source. During one condition of the energizing source, the binary information is transferred from the first storage unit to the intermediate storage unit, gates allowing communication between the first storage unit and the intermediate storage unit while blocking communication between the intermediate storage unit and the second storage unit. During another condition of the energizing source, the binary information is transferred from the intermediate storage unit to the second storage unit, gates allowing communication between the intermediate storage unit and the second storage unit while blocking communication between the intermediate storage unit and the first storage unit. The gates are differently responsive to two predetermined conditions of the energizing source in order to effect the desired communication and transfer of information between the storage units while these gates are non responsive to the energizing source when it is changing between these predetermined conditions so that the desired operation of the system is achieved only during two predetermined conditions of the energizing source.

3,573,755

ELECTRICAL TABLET FOR GRAPHIC INPUT SYSTEM

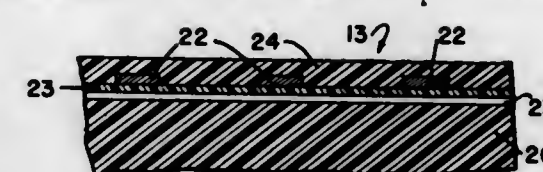
Thomas O. Ellis, Palos Verdes Estates, and Malcolm R. Davis, Woodland Hills, Calif.
Original application June 29, 1964, Ser. No. 378,786, now Patent No. 3,399,401, dated Aug. 27, 1968. Divided and this application Feb. 16, 1968, Ser. No. 724,658
Int. Cl. G08c 21/00

U.S. Cl. 340—173

4 Claims

An electrical tablet is disclosed which includes a wire

screen of parallel wires along X and y coordinates with



capacitively coupled energizing conductors which are structurally arranged in accordance with a binary code.

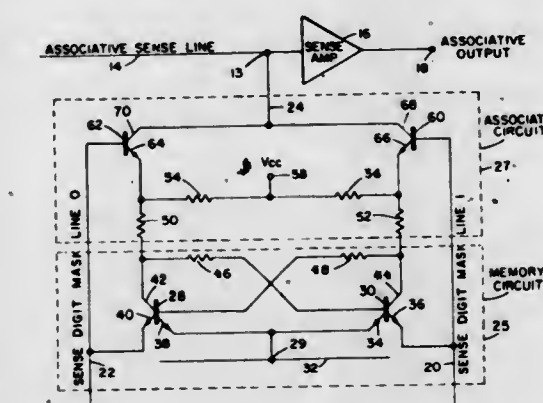
3,573,756

ASSOCIATIVE MEMORY CIRCUITRY

Durrell W. Hillis, and Thomas W. Hart, Jr., Phoenix, Ariz., assignors to Motorola, Inc., Franklin Park, Ill.
Filed May 13, 1968, Ser. No. 728,691
Int. Cl. G11c 11/40, 15/00

U.S. Cl. 340—173

8 Claims



An associative memory cell comprising a memory circuit and an association circuit. The memory circuit includes first and second transistors cross coupled in a bistable circuit configuration so that the first and second transistors alternately conduct as the cell is switched from one to the other of its two stable conductive states. An association current switching circuit is connected between the memory circuit and an associative sense terminal and is further connected to a sense-write circuit. The association circuit is responsive to the conductive state of the memory circuit and to the conductive state of the sense-write circuit to either conduct current from the associative sense terminal or remain nonconductive and thereby indicate association between the sense-write circuit and the memory cell.

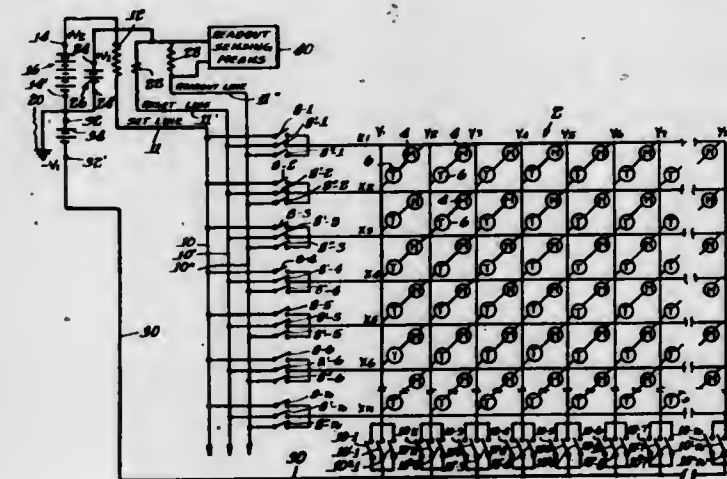
3,573,757

MEMORY MATRIX HAVING SERIALLY CONNECTED
THRESHOLD AND MEMORY SWITCH DEVICES AT
EACH CROSS-OVER POINT

Robert T. Adams, Short Hills, N.J., assignor to Energy Conversion Devices, Inc., Troy, Mich.
Filed Nov. 4, 1968, Ser. No. 773,035
Int. Cl. G11c 11/36; H03k 19/12

U.S. Cl. 340—173

4 Claims



A binary memory circuit used in a memory matrix array of

the crossgrid X-Y conductor type. The memory matrix of X and Y axes conductors forming rows and columns of conductors to be addressed, first and second series connected switch devices coupled between each active crossover point of the X and Y conductors, each first switch device being a threshold switch device which has a relatively high resistance condition when the voltage applied thereto is below a first voltage threshold level, and is switched to a relatively low resistance condition when the voltage applied thereto reaches said first voltage threshold level, which low resistance condition remains until the current therethrough drops below a given holding value, and each second switch device being a memory switch device which is triggered into a relatively low resistance condition when the value of the voltage applied thereto exceeds a second voltage threshold level and which condition remains in such low resistance condition independently of the presence of absence of an applied voltage until reset to a high impedance condition with the feeding of a reset current pulse therethrough.

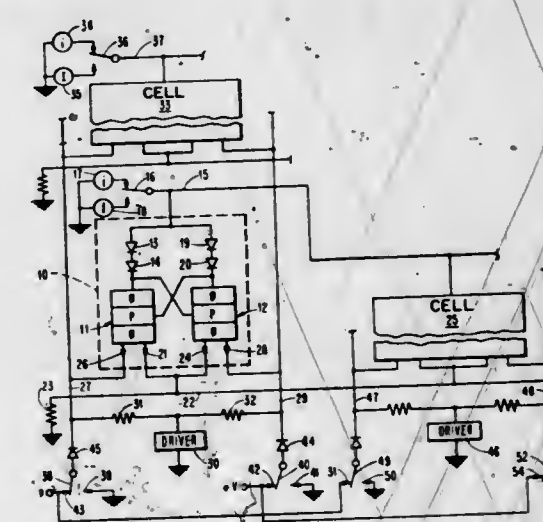
3,573,758

NON-LINEAR IMPEDANCE MEANS FOR TRANSISTORS
CONNECTED TO EACH OTHER AND TO A COMMON
POWER SOURCE

Robert A. Henle, Hyde Park, and W. David Pricer, Poughkeepsie, N.Y., assignors to International Business Machines Corporation, Armonk, N.Y.
Filed Feb. 27, 1969, Ser. No. 802,927
Int. Cl. G11c 11/40; H03k 3/286

U.S. Cl. 340—173

36 Claims



Each of the pair of transistors of a flip-flop storage cell has its collector connected through a nonlinear impedance means to a low constant current source when the cell is in an inactive condition. The nonlinear impedance means for the conducting transistor maintains the ratio of the load impedance means to the base-emitter impedance of the conducting transistor greater than one to maintain the transistors of the cell in the desired bistable state when the transistors are connected to the low constant current source through the nonlinear impedance means.

3,573,759

MAGNETIC FIELD COUPLED SUPERCONDUCTING
QUANTUM INTERFERENCE SYSTEM

Arnold H. Silver, Farmington, and James E. Zimmerman, Dearborn, Mich., assignors to Ford Motor Company, Dearborn, Mich.
Continuation of application Ser. No. 537,239, Mar. 24, 1966, now abandoned. This application Jan. 24, 1969, Ser. No. 796,303
Int. Cl. G11c 11/44

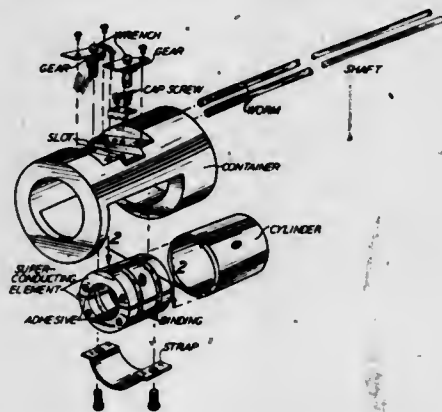
U.S. Cl. 340—173.1

6 Claims

This disclosure relates to an electrical circuit component including a superconductive quantum interference device having a loop of superconducting material with a weak link positioned therein. The loop of superconducting material and

the weak link enclose an area for the reception of magnetic flux. Means are positioned adjacent the superconductive quantum interference device for producing a varying magnetic field at the device to induce a current therein. The magnitude of the varying magnetic field is sufficient to induce a critical current in the weak link. As a result, the current induced in the superconductive quantum interference device alternately increases and decreases as the number of flux quanta changes in the area enclosed by the superconducting material and weak link.

The disclosure also relates to a process of inducing a nonlinear electric current in a superconductive quantum



interference device having a loop of superconducting material with a weak link positioned therein. It comprises placing this device in a superconducting state and locating an inductive member magnetically adjacent thereto. A varying current is applied to the inductive device to induce a current in the superconductive quantum interference device. The magnitude of this varying current is sufficient to induce a critical current in the weak link, and, as a result, the current alternately increases to the value of the critical current through the weak link and decreases to some lower value as the number of flux quanta changes in the area enclosed by the superconducting material and weak link.

3,573,760

HIGH DENSITY THIN FILM MEMORY AND METHOD OF OPERATION

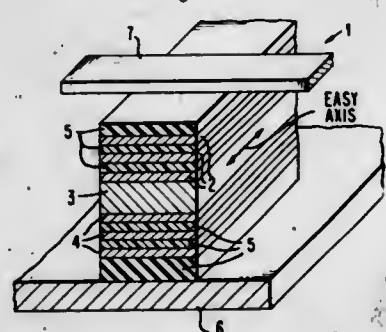
Hsu Chang, Yorktown Heights, and Kurt R. Grebe, Beacon, N.Y., assignors to International Business Machines Corporation, Armonk, N.Y.

Filed Dec. 16, 1968, Ser. No. 783,927

Int. Cl. G11c 11/14

U.S. Cl. 340-174

28 Claims



A multilayer, multithreshold magnetic film memory element is disclosed which consists of a number of superposed magnetic storage layers which share the same word and bit-sense lines. Operation of the element is essentially in the orthogonal drive mode and requires the application of different amplitude pulses on the word line to separately energize each of the storage films of the memory element. Thus, for readout of stored information, the amplitude of a succeeding read pulse increases relative to the amplitude of the preceding read pulse. Each ascending step in the read pulses provides sufficient magnetic field to overcome the rotational switching threshold of a storage film, but insufficient magnetic field to overcome the rotational switching threshold of the next storage film. For writing, each succeeding pulse after the initial pulse is lower in amplitude than the preceding pulse and is applied in coincidence with

one bit pulse. Only one layer at a time is switched; the magnetization direction thereof being determined by the polarity of each bit pulse.

Several embodiments of a multilayer magnetic elements are shown all of which are capable of storing multiple bits of information at the intersection of a single word line and a single bit-sense line. The method of operating multilayer memory elements in conjunction with an array of these elements is also disclosed.

3,573,761

COINCIDENT CURRENT MAGNETIC CORE MEMORY MATRIX

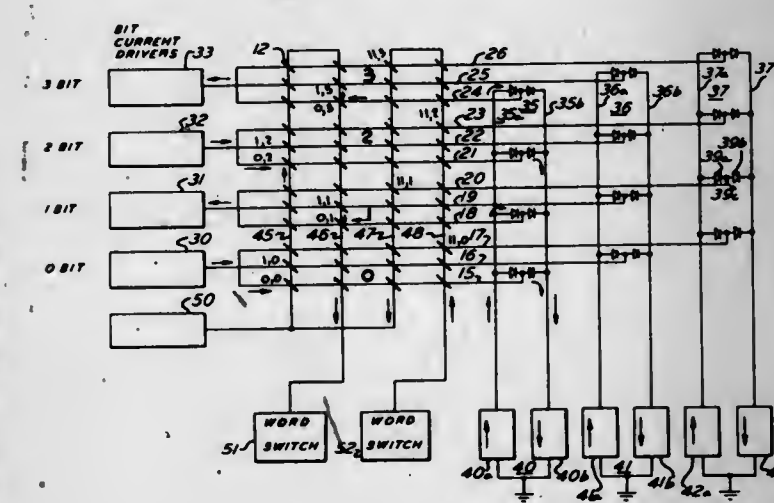
Richard M. Genke, Colts Neck, N.J., assignor to Interdata, Inc., Oceanport, N.J.

Filed Feb. 28, 1968, Ser. No. 709,131

Int. Cl. G11c 5/02, 11/06

U.S. Cl. 340-174

16 Claims



A coincident current magnetic core memory matrix of the 2½ D-type having bit lines arranged in groups and a separate bit current driver is connected to one end of all the bit lines of a group. A plurality of pairs of conductors are provided equal in number with the number of bit lines in a group. Diodes connect another end of each bit line of a group to a differing one of the conductor pairs. There is provided for each pair of conductors bit switching means operable for connecting both conductors of a pair to a point of reference potential to complete a path for flow of bit current through the respective bit lines.

3,573,762

3-WIRE COINCIDENT CURRENT CORE MEMORY

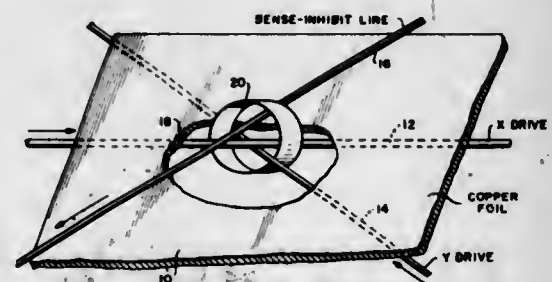
Richard W. Svobodny, Bloom, Minn., assignor to United States of America as represented by the Secretary of the Navy

Filed Jan. 28, 1969, Ser. No. 794,514

Int. Cl. G11c 5/04, 7/02, 11/06

U.S. Cl. 340-174

3 Claims



A magnetic core storage system incorporates a metallic ground plane having apertures for mounting magnetic cores therein. The ground plane is disposed between the drive lines and a shared sense-inhibit line, thereby aiding noise reduction in the system and reducing recovery time. Only three lines are required to complete the system while retaining all operative functions.

3,573,763

WORD DRIVER FOR A MAGNETIC MEMORY

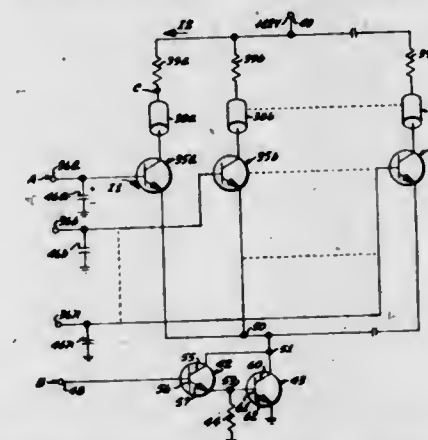
Bohumir Sramek, Phoenix, Ariz., assignor to General Electric Company

Filed Feb. 11, 1969, Ser. No. 798,320

Int. Cl. G11c 7/00, 5/02

U.S. Cl. 340-174

A word driver for writing and reading information in a



magnetic memory having transistors connected directly to TTL logic circuits without the need for buffer amplifiers and decoding circuitry between the transistors and logic circuits.

3,573,764

DUAL BILATERAL FLOATING GATE SWITCH

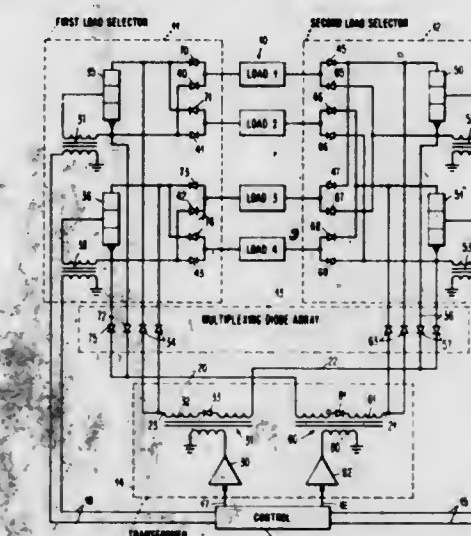
Loren E. Larsen, Arvada, Colo., assignor to International Business Machines Corporation, Armonk, N.Y.

Filed July 29, 1969, Ser. No. 845,851

Int. Cl. G11c 7/00, 11/02

U.S. Cl. 340-174

3 Claims



An array of loads selectively receives reversed currents. Transistor load selectors are connected on each end of the loads in the array. First and second arrays of diodes are connected between transistors in one load selector to the loads, groups of such diodes are connected respectively to the transistors in a first load selector. The collector electrodes of such transistors are respectively connected to sets of diodes of the first array of diodes with the diodes being connected individually to sets of loads. The second array of diodes is poled to conduct current in an opposite direction and is arranged identically in sets but respectively connected to the emitter electrodes of such transistors. At the other end of the loads, in the second load selector, third and fourth arrays of diodes are connected in the same manner as described but to a second array of transistors. The two arrays of transistors are multiplexed to a single transformer drive means capable of supplying reverse currents over four electrical lines. Arrays of multiplexing diodes connected respectively to the emitter and collector electrodes of the transistors provide isolation of the transistors. Some isolation is provided within the transformer drive means dynamic electrical impedance. Control means are connected to the transistor arrays and to the drive means for effecting selective reverse current flow through any one of the loads in such array.

3,573,765

DOMAIN PROPAGATION ARRANGEMENT

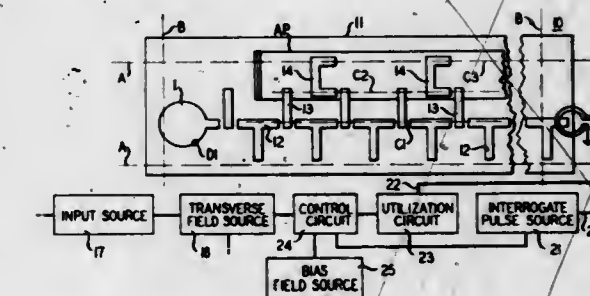
Anthony J. Perneski, Martinsville, N.J., assignor to Bell Telephone Laboratories, Incorporated, Murray Hill, N.J.

Filed Nov. 1, 1968, Ser. No. 772,667

Int. Cl. G11c 11/14, 19/00

U.S. Cl. 340-174

11 Claims



A read-only domain propagation memory is realized by applying magnetic traps for single wall domains along a propagation channel for such domains. The traps can be defined by a magnetically soft or by a permanent magnet overlay arrangement which extracts a preset pattern of domains from the propagation channel responsive to a control signal. The overlays are removable to permit a change in the domain pattern.

3,573,766

APPARATUS AND PROCESS FOR RECORDING BINARY DATA IN COMPACT FORM

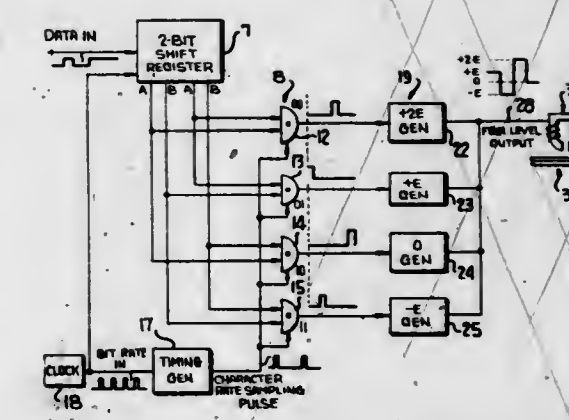
Frank A. Perkins, Jr., Melbourne Village, Fla., assignor to Radiation Incorporated, Melbourne, Fla.

Filed Feb. 17, 1969, Ser. No. 799,865

Int. Cl. G11b 5/02

U.S. Cl. 340-174.1

10 Claims



Serial binary data to be recorded is divided into groups of equal numbers of bits in the order in which those bits appear in the original data format, and each group of bits is sampled in sequence to generate a symbol that distinctively represents the specific sequence of bit values in that group or the same sequence of bit values in any other group of bits. Each symbol occupies a time interval substantially equal to that occupied by a single bit in the original data format, so that by recording the symbols in sequence the entire information content of the original binary data is recorded in compact form.

3,573,767

ELECTRON BEAM READOUT OF MAGNETIC STORAGE DISK

Richard O. McCary, and Fred E. Luborsky, Schenectady, N.Y., assignors to General Electric Company

Filed Nov. 27, 1968, Ser. No. 779,401

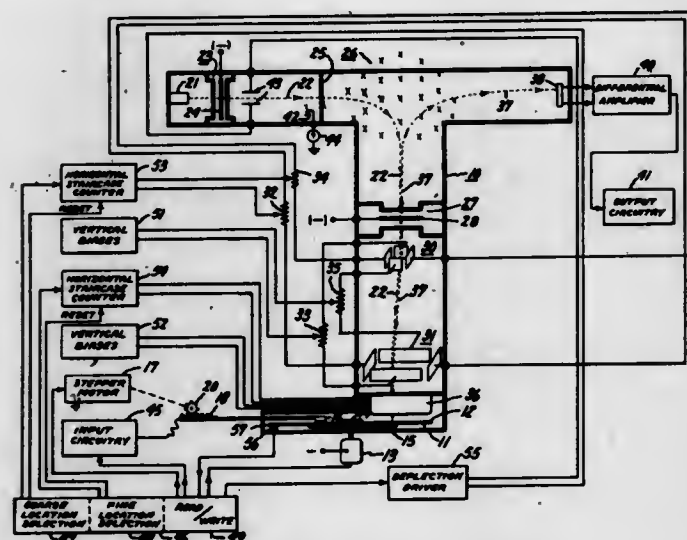
Int. Cl. G11b 5/32

U.S. Cl. 340-174.1

18 Claims

A rotating disc coated with a thin magnetic film is used in a vacuum system as a high density data storage medium. A group of magnetic recording heads, overlapped in staircase fashion, are actuator-positioned so that one complete band of tracks may be recorded in a single revolution of the disc.

Interrogation is accomplished by controllably deflecting an electron beam in a radial direction toward any predetermined track. The electron beam is reflected by an



electric potential on the disc surface and deflected by the magnetic field just above the surface. Differential sensing of reflected current allows determination of the stored information.

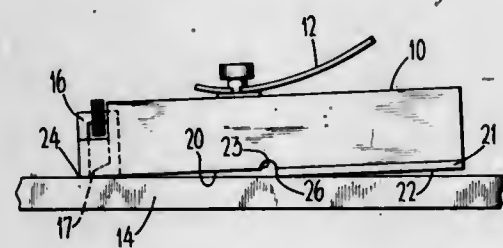
3,573,768

STEPPED MAGNETIC HEAD WITH OFFSET BIASING
George A. Harris, San Ramon, Calif., assignor to The Singer Company

Filed Oct. 20, 1967, Ser. No. 676,863
Int. Cl. G11b 5/60

U.S. Cl. 340-174.1

7 Claims



The slider of a flying head is stepped to provide a plurality of support areas, equal or not, preferably two, one upstream from the other, which fly with their trailing edges at equal distances from the record disc and with a stable up-attitude. The step may be formed by the vacuum deposition of, for example, 50 microinches of metal on the upstream support area.

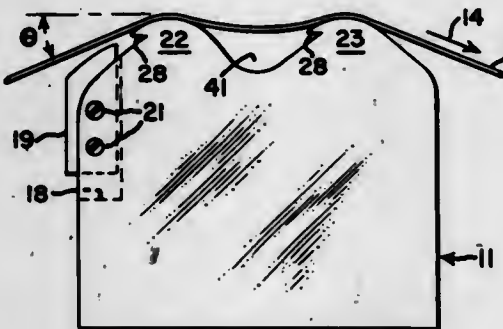
3,573,769

MAGNETIC HEAD WITH AIR RELIEF SLOTS
James D. Flora, East Syracuse, N.Y., assignor to General Electric Company

Filed Oct. 30, 1967, Ser. No. 679,005
Int. Cl. G11b 5/60, 15/64

U.S. Cl. 340-174.1

11 Claims



An improved arrangement is disclosed of magnetic heads and tape for writing, reading, and erasing. The arrangement

is particularly advantageous for high-speed tape operation, such as for electronic computers, where reliable operation is required and minimum wear is desired in order to achieve long life for the magnetic heads. A particular angle is disclosed for entry of the tape against the head. One or more air diversion means such as lateral slots are provided in the head to divert the airflow which accompanies the moving tape, thus preventing it from tending to lift the tape out of contact with the head. These air slots may be slanted and/or tapered to direct the diverted airflow in a desired direction. For a dual-gap head, an air relief means is disclosed for use between the gaps. An erase head is adjustably secured to the read-write head, to provide a unitary combination.

3,573,770

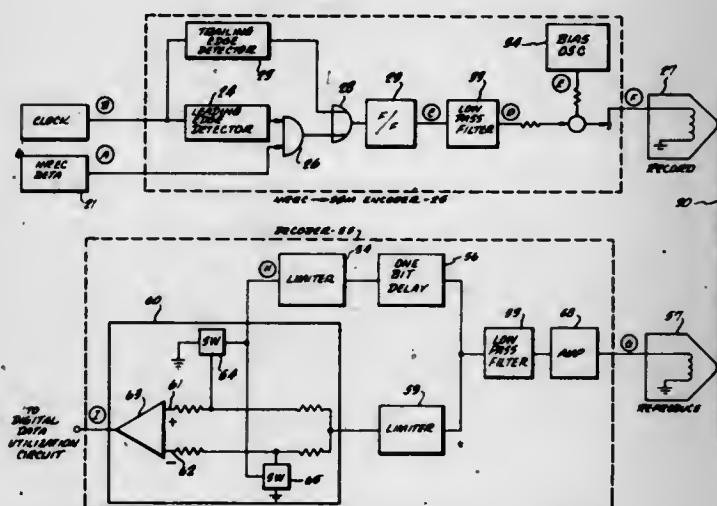
SIGNAL SYNTHESIS PHASE MODULATION IN A HIGH BIT DENSITY SYSTEM

Kermit A. Norris, Azusa, Calif., assignor to Subscription Television, Inc., New York, N.Y.

Continuation-in-part of application Ser. No. 592,458, Nov. 7, 1966, now Patent No. 3,518,648. This application Nov. 1, 1967, Ser. No. 679,902
Int. Cl. G11b 5/06, 5/44

U.S. Cl. 340-174.1

18 Claims



A method and apparatus for improving the packing density of digital data on a magnetic storage medium is disclosed which includes a source of digital signals, a format converter for converting the digital signals to a phase-modulated signal which is filtered and linearized for recording as a nonsaturated analog signal on a magnetic medium. A signal synthesizer included in the record channel, selectively contributes to the phase modulation by predistorting the signal to be recorded in order to compensate for phase distortions in the magnetic storage system. The signal to be recorded is an analog-alternating current signal varying above and below a zero reference line. The synthesizer circuit shifts the phase of the signal to be recorded predetermined amounts and directions such that upon reproduction the zero crossing points are properly separated with a crossing at each bit cell boundary for one binary value and a crossing at each bit cell boundary plus an additional zero crossing at the midbit cell period for the other binary value.

3,573,771

FLEXIBLE DISK MAGNETIC STORAGE DEVICE
Henry H. Cockrell, Jr., Raleigh, N.C., assignor to International Business Machines Corporation, Armonk, N.Y.

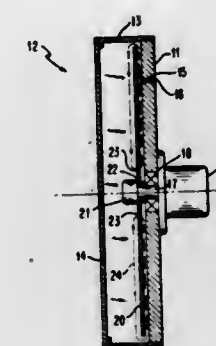
Filed Apr. 21, 1969, Ser. No. 817,727
Int. Cl. G11b 5/60

U.S. Cl. 340-174.1

6 Claims

A flexible disc magnetic storage device in which the sole

return path for the pumped air is provided through the side signal, adapted for transmission to a remote station is determined in dependence upon the selective illumination of



of the disc remote from the backer plate, thus permitting the disc to operate in an enclosed controlled environment.

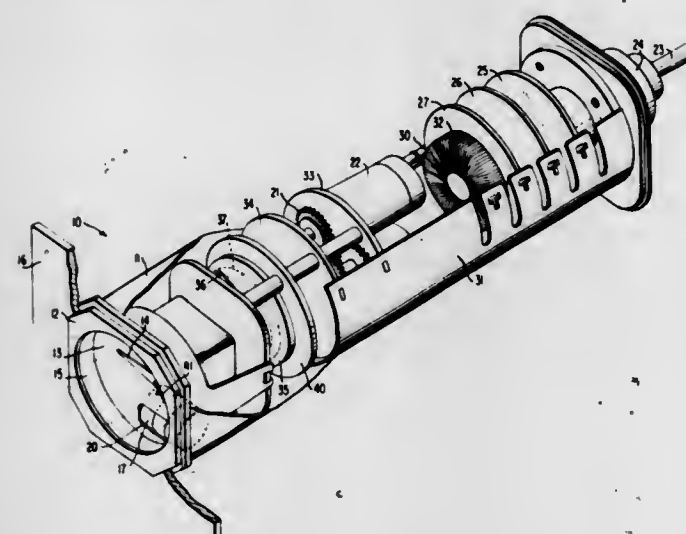
3,573,772

CONDITION RESPONSIVE INDICATING INSTRUMENT
Richard E. Anderson, Lynn, Mass., assignor to General Electric Company

Filed July 5, 1968, Ser. No. 742,631
Int. Cl. G09F 9/00

U.S. Cl. 340-187

5 Claims



A condition indicating instrument with an extreme condition recorder. A rotatable, magnetized rotor with a pointer affixed thereto is engaged by a condition indicating drive mechanism to be rotated from an original position to an extreme condition position. A pair of spring-biased pivoted members normally act as brakes on the rotor. An electromagnet is energized to release the braking force and produce, in conjunction with the pivoted members, magnetic poles which react with magnetic poles on the rotor to return the rotor toward its original position.

3,573,773

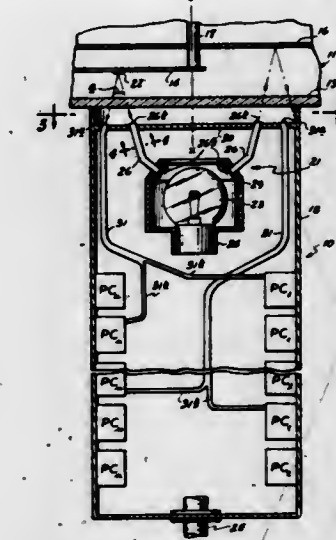
READOUT DEVICE
Edward W. O'Hanlon, Somerville, N.J., assignor to Applied Electronics Corporation of New Jersey, Edison, N.J.

Filed Dec. 26, 1967, Ser. No. 693,684
Int. Cl. G08c 9/06

U.S. Cl. 340-188

19 Claims

In a device for reading the position of a meter pointer or other indicator having a reflective portion and moving in a predetermined path, light is directed at such path from one side, for example, through the meter's cover glass, for reflection back through the glass at the position of the pointer, a series of light receiving elements of light transmitting fibers have ends thereof arranged sequentially along the path to selectively receive the light reflected at the position of the pointer and to selectively illuminate photocells to which the other ends of such elements extend, and an electrical characteristic, such as the frequency, of a



3,573,774

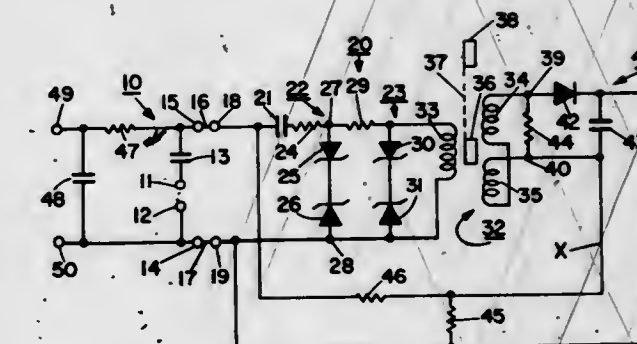
TWO-WIRE TRANSMISSION SYSTEM FOR REMOTE INDICATION

Everett O. Olsen, Wrentham, Mass., assignor to The Foxboro Company, Foxboro, Mass.

Filed May 8, 1967, Ser. No. 636,882
Int. Cl. G08c 19/08

U.S. Cl. 340-199

4 Claims



For the purpose of sensing the condition of remote apparatus, AC energizing power is sent from a local position along a two-wire transmission line to a remote transformer whose coupling between input and output is affected by the condition of the remote apparatus; the transformer output is converted to DC having a level indicating the condition of the remote apparatus, and this DC signal is sent back along the same two-wire transmission line to the local position; bipolar clipping of the AC energizing power at the input of the transformer makes the entire system relatively insensitive to system variables affecting the AC energizing power.

3,573,775

TEMPERATURE INDICATOR CIRCUITS
Victor H. Zane, Connorsville, Ind., assignor to Design and Manufacturing Corporation

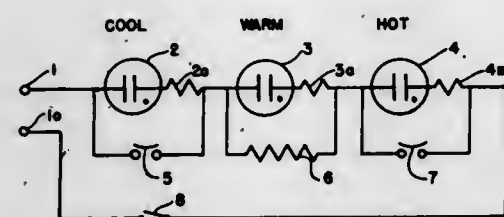
Filed June 30, 1969, Ser. No. 837,482
Int. Cl. G011 19/12

U.S. Cl. 340-227

13 Claims

Multistep temperature indicator circuits for electrical appliances and the like comprising electrically actuated indicator means in series circuit with a source of electrical

energy. Each of the indicator means in series corresponds to a temperature range within the appliance and will give an



indication when its corresponding temperature range obtains within the appliance.

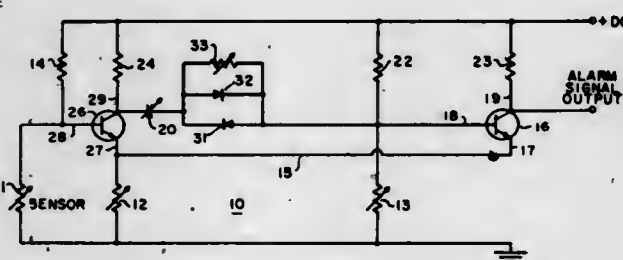
3,573,776

BIAS CUTOFF TRIGGER CIRCUIT

Donald N. Dick, Laurel, and Michael J. Superczynski, Annapolis, Md., assignors to the United States of America as represented by the Secretary of the Navy
Filed Oct. 24, 1967, Ser. No. 677,797
Int. Cl. G08b 17/00

U.S. Cl. 340-228

10 Claims



A solid-state high temperature alarm system utilizing an off-on-off oscillator with direct current bias cutoff for use as a temperature monitor in an alarm system.

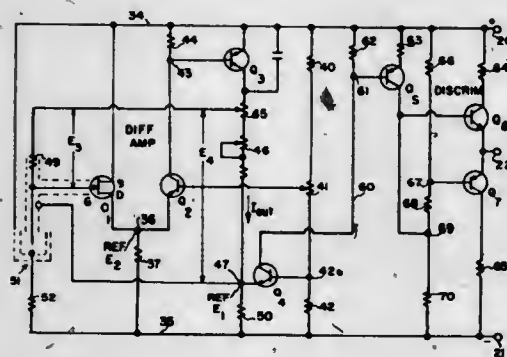
3,573,777

COMBUSTION PRODUCTS DETECTOR CONTROL APPARATUS

Arlon D. Kompelen, Richfield, Minn., assignor to Honeywell Inc., Minneapolis, Minn.
Filed Dec. 9, 1968, Ser. No. 782,382
Int. Cl. G08b 17/10

U.S. Cl. 340-237

6 Claims



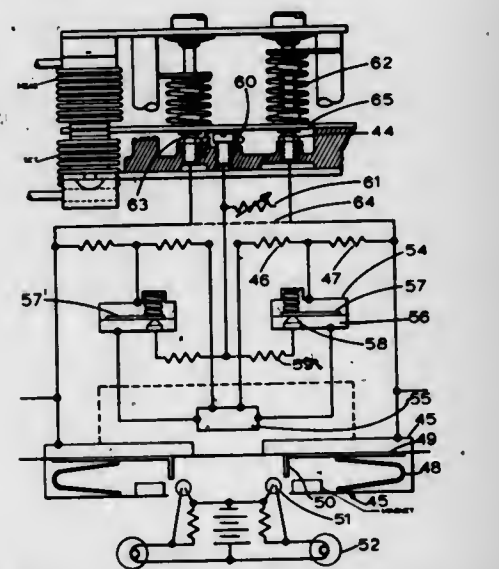
A combustion products detector system having a central station and one or more remote ionization type sensing stations interconnected to the central station by a three conductor line and further having a solid-state end-of-line supervision circuit which reports back on one line that all three lines are in good condition. The remote station has an ionization detector across which is maintained a substantially constant voltage and through which a current flows, the current being reduced in the presence of combustion products. The circuit is specially designed to provide an output current which changes in direct proportion to the sensor current.

3,573,778
CANTILEVER-LIKE DEVICE IN FLUID-MECHANICAL ALARM

Philip H. Sanford, Walpole, Mass., assignor to The Foxboro Company, Foxboro, Mass.
Filed Nov. 1, 1968, Ser. No. 772,595
Int. Cl. H01r 11/26

U.S. Cl. 340-240

6 Claims



In fluid operated instrumentation of process and/or energy control, a flexibly supported cantileverlike diaphragm unit as a high sensitivity device which lends itself to miniaturization and integrated fluid systems; further, in such instrumentation, wherein mechanical movement devices exemplified by diaphragms, force-bars, and baffles for fluid nozzles are combined with fluid circuitry, and wherein design is in the nature of miniaturization and integrated fluid systems, a dynamic system plate in which different portions are flexible and separate movement devices, as exemplified above, and which may include cantileverlike structures whereby the plate includes movement devices of a system or subsystem, as a dynamic integrated system plate; and further, in such instrumentation, an alarm system operable through change in the restriction of a nozzle upon the application of a signal to a nozzle-baffle assembly, one example of such an alarm system including a simple cantilever, or a dynamic plate with a cantilever and a force arm as parts of the plate. Passive elements, such as pneumatic restrictors, may also be embodied in the plate.

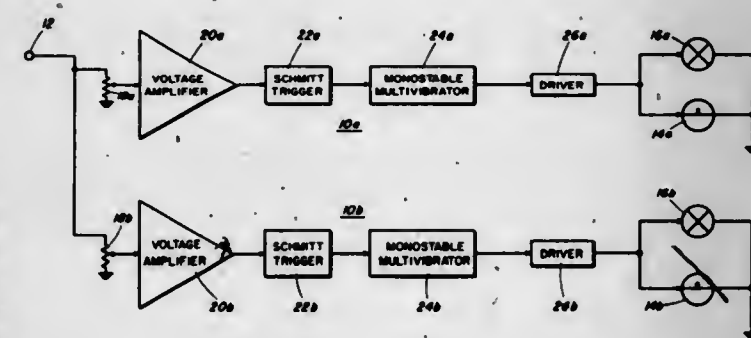
3,573,779

RECORD-LEVEL INDICATOR

Oliver H. McDaniel, Spruce Creek, and James H. Prout, State College, Pa., assignors to the United States of America as represented by the Secretary of the Navy
Filed Mar. 19, 1968, Ser. No. 714,248
Int. Cl. G08b 21/00

U.S. Cl. 340-248

5 Claims



A device for monitoring input levels to a tape recorder having two channels fed by a common input. At a preset peak input level in each channel, an indicator light is triggered. The triggering is accomplished by direct-coupling a voltage amplifier to a Schmitt trigger. When recording, at the proper input level, one channel is adjusted so that its

indicator is displaying while the other channel is adjusted so its indicator is not displaying.

3,573,780

AUTOMATIC TELEPHONE ALARM SYSTEM

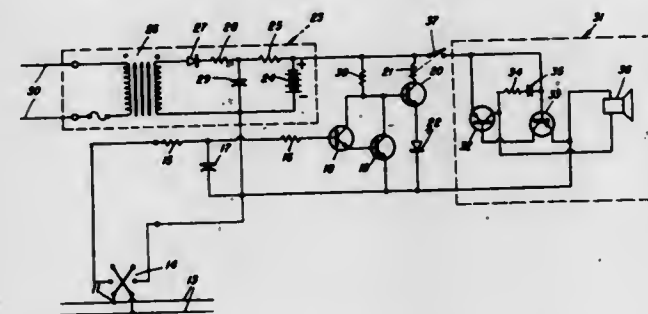
Franklin C. Butterbaugh, 409 Newburg Ave., Baltimore, Md.
21228

Filed Sept. 27, 1968, Ser. No. 763,092

Int. Cl. G08b 21/00

U.S. Cl. 340-248

4 Claims



An alarm actuating circuit is disclosed for monitoring the condition of a communication line. As long as a line potential exists, an amplifier is cut off. In the case of a short circuit, open fault on the line or grounding of the battery side of the input to the communication line, the cut off no longer exists and the amplifier closes a relay to sound an alarm. The line current required is so small as to be negligible.

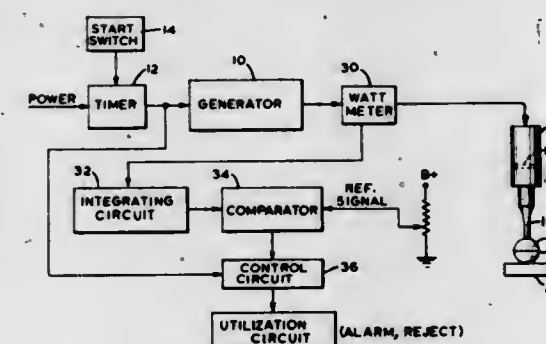
3,573,781

MONITORING CIRCUIT FOR SONIC APPARATUS

Andrew Shoh, Ridgefield, Conn., assignor to Branson Instruments, Incorporated, Stamford, Conn.
Filed Mar. 14, 1968, Ser. No. 713,014
Int. Cl. G08b 21/00

U.S. Cl. 340-248

15 Claims



A sonic or ultrasonic apparatus, actuated for a predetermined time interval, is provided with a control circuit for producing a signal if the energy delivered during such interval is either of too low a value or exceeds a permissible high value. Both the low limit and the high limit are adjustable.

3,573,782

CURRENT MONITOR

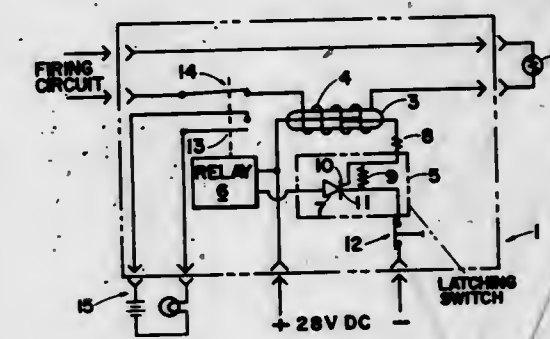
John E. Williams, San Jose, Calif., assignor to United Aircraft Corporation, East Hartford, Conn.
Filed May 23, 1968, Ser. No. 731,588
Int. Cl. G08b 21/00

U.S. Cl. 340-253

6 Claims

A current monitor is provided for indicating the presence of the short duration current pulses necessary to detonate ordnance devices and simultaneously interrupt the ordnance firing circuit to simulate firing conditions. The current monitor consists of a reed switch magnetically linked to the firing circuit by a low resistance coil in series with the firing circuit. The normally opened reed switch is connected in series with the monitor power source and the control gate of a silicon controlled rectifier. The monitor source of power is also connected in series with a relay and the anode of the silicon controlled rectifier, the relay being adapted, upon

activation, to both interrupt the firing circuit and to generate an instrumentation signal indicative of the presence of the required current flow in the firing circuit. In operation a current pulse sufficient to detonate the ordnance device will cause the reed switch to close and trigger the silicon controlled rectifier. When the silicon rectifier is triggered, the current will be permitted to flow through the relay



thereby interrupting the firing circuit and producing the instrumentation signal. Since the current is no longer flowing through the firing circuit, the reed switch will open, but this will not interrupt the flow of current through the relay since the silicon controlled rectifier will continue to conduct once it has been triggered. Thus, the relay remains activated and the instrumentation signal is maintained until the circuit is reset.

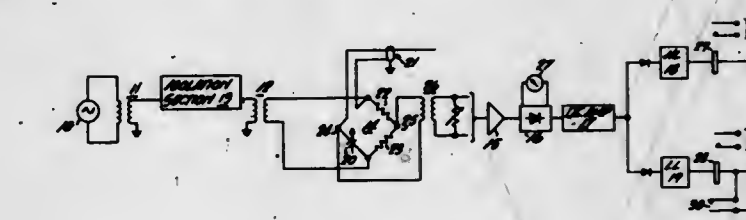
3,573,783

PROXIMITY SENSOR

Solly L. Fudaley, Palos Park, Ill., assignor to R-F Controls, Inc., Chicago, Ill.
Filed Sept. 13, 1967, Ser. No. 667,600
Int. Cl. G08b 13/26

U.S. Cl. 340-258

12 Claims



The proximity sensor detects persons or objects moving into or out of the field of an antenna energized by a low frequency signal. More particularly, a bridge circuit is coupled between a source of low frequency, an antenna, and a detector. The bridge is balanced to divide the energy from the source between the antenna and the detector. A switch is connected to cause a control function responsive to the detection of unbalances which occur in the bridge when the field of the antenna is upset. By changing the efficiency of the bridge, the depth of the antenna field may be varied without affecting the operating threshold of the detector.

3,573,784

METAL DETECTING APPARATUS FOR CONVEYOR BELT

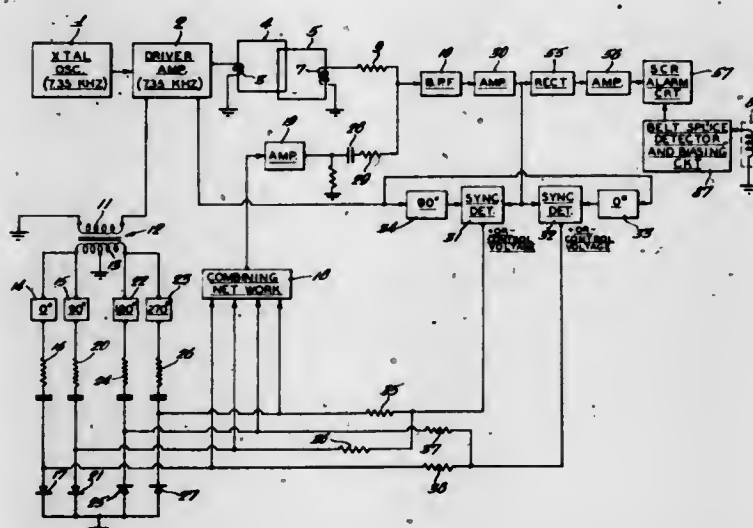
Henry L. Bachofer, Newtown Square, Pa. (Sun Oil Company, Bishop Hollow Road, Newtown Square, Pa. 19073), and Elbert N. Shawhan, West Chester, Pa. (Sun Oil Company, Bishop Hollow Road, Newtown Square, Pa. 19073)
Filed Oct. 2, 1968, Ser. No. 764,549
Int. Cl. G08b 21/00; G01r 33/12

U.S. Cl. 340-258

15 Claims

For detecting metal traveling along a conveyor belt, an excitation coil and a pair of pickup coils are positioned adjacent the belt. A signal voltage is induced in the pickup coils whenever a metallic body passes by such coils. Direct pickup from the excitation coil by the pickup coils is reduced to a minimum by means of a bucking voltage which is

automatically adjusted in phase and amplitude. A separate the characters are changed. This is accomplished by causing detecting means automatically reduces the sensitivity of the the scanning beam that forms the individual character slices



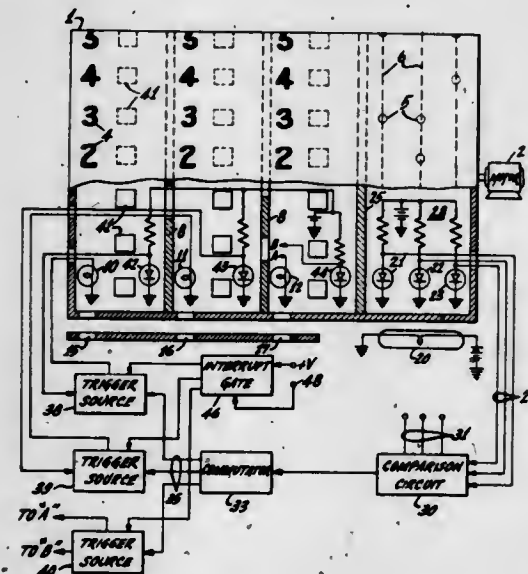
indicating means whenever a metallic nonuniformity in the belt itself passes by the pickup coils.

3,573,785

STROBOSCOPIC DISPLAY APPARATUS

James C. Miller, Pennington, and Charles M. Wine, Princeton, N.J., assignors to RCA Corporation
Filed Oct. 23, 1967, Ser. No. 677,322
Int. Cl. H04I 17/24; H01J 37/24
U.S. Cl. 340-324

9 Claims



A stroboscopic display system having a continuously driven display medium with means to initially enable a momentary illuminating means to display selected characters, and an independent secondary means to automatically enable the illuminating means to display the selected characters after this initial operation until selectively interrupted.

3,573,786

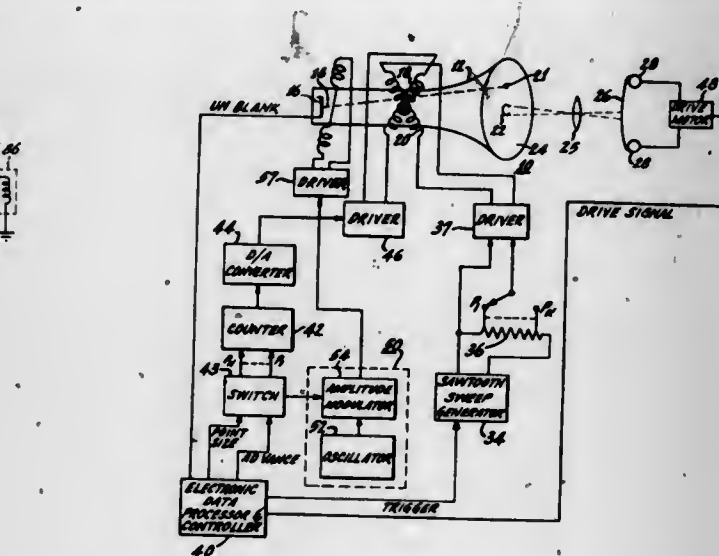
COMPENSATION CIRCUIT FOR ELECTRONIC PHOTOCOMPOSITION SYSTEM

John C. Schira, Princeton, N.J., assignor to RCA Corporation
Filed Oct. 23, 1967, Ser. No. 677,324
Claims priority, application Great Britain, June 12, 1967, 27093/67
Int. Cl. G06F 3/14

U.S. Cl. 340-324

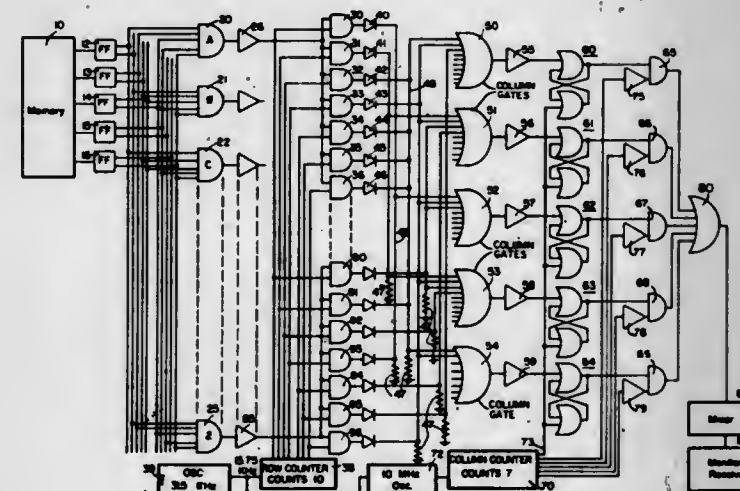
7 Claims

An electronic photocomposition system compensates for variations in the density of characters when the point sizes of

3,573,787
GENERATOR FOR VIDEO SIGNAL FOR REPRODUCTION OF CHARACTERS BY TELEVISION RECEIVER

George E. Sandgren, Glenview, and William Milleker, Chicago, Ill., assignors to Motorola, Inc., Franklin Park, Ill.
Filed Jan. 31, 1968, Ser. No. 701,940
Int. Cl. G06F 3/14; G06K 15/18; G08C 19/28
U.S. Cl. 340-324

10 Claims



Character generator for developing a video signal for application to a television receiver to reproduce characters on the tube screen by a dot matrix. The signal representing each character actuates a plurality of gates for horizontal lines which are operated in turn, and each selectively triggers a set of gates associated with the dot positions along the lines which are operated in turn to produce video components which are combined to form the video signal.

3,573,788

MEANS TO VARY THE INTENSITY OF ILLUMINATION OF ELECTROLUMINESCENT DISPLAY SEGMENTS

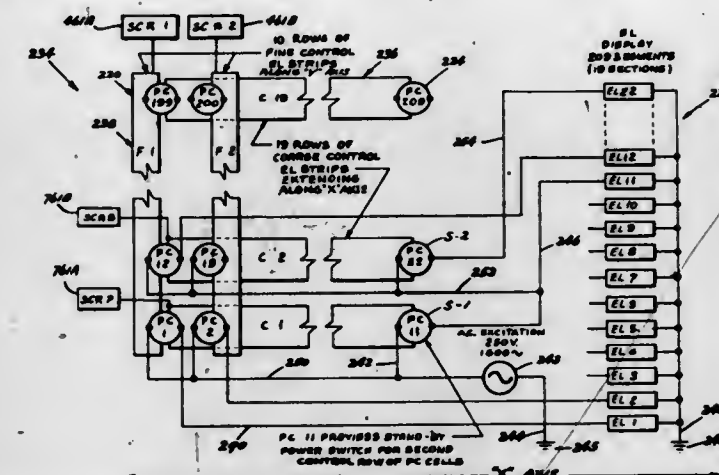
Robert J. Molnar, New York, N.Y., and Walter Parfomak, Wallington, N.J., assignors to The Bendix Corporation
Original application Mar. 21, 1966, Ser. No. 535,745, now Patent No. 3,440,637, dated Apr. 22, 1969. Divided and this application Sept. 9, 1968, Ser. No. 758,378
Int. Cl. G01d 7/00; G09b 9/32

U.S. Cl. 340-324

5 Claims

Means for controlling an alternating current selectively

applied to energize a plurality of electroluminescent seg-



ments so as to vary the intensity of illumination of the selectively energized electroluminescent display segments.

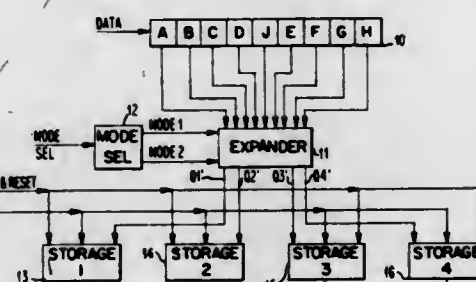
3,573,789

METHOD AND APPARATUS FOR INCREASING IMAGE RESOLUTION

John V. Sharp, West Hurley, and Donald R. Thompson, Woodstock, N.Y., assignors to International Business Machines Corporation, Armonk, N.Y.
Filed Dec. 13, 1968, Ser. No. 783,685
Int. Cl. G06F 3/14

U.S. Cl. 340-324

10 Claims



An apparatus and the method embodied therein for increasing the resolution of a data image received and stored in binary form. The method interrogates each data bit with respect to two or more data bits which surround the data bit being interrogated and expands the interrogated data bit into a plurality of new data bits. The apparatus comprises a first storage means, an expander, and a second storage means for storing the newly generated information.

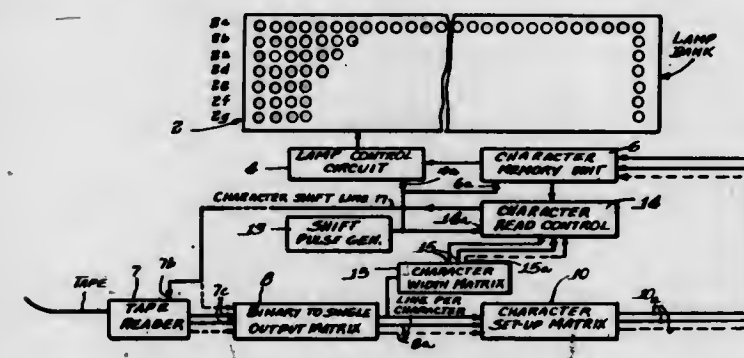
3,573,790

SOLID STATE SIGN SYSTEM

Edward J. Schulenburg, Sr., Danville, Ill., and Ervin M. Ball, Indianapolis, Ind., assignors to Time-O-Matic, Inc., Danville, Ill.
Filed Mar. 2, 1965, Ser. No. 436,469
Int. Cl. G09F 13/00

U.S. Cl. 340-334

10 Claims



A solid state circuit controlled variable width character running sign lamp bank including a shift register circuit for

each row of lamps in which shift register circuit a pattern of lamp-energizing markers are shifted in accordance with the running sign involved. The lamp energizing markers are fed to the first stages of the row shift register circuits from character memory circuits each constituting a shift register circuit with a number of stages equal to the number of lamps in a row required to display the widest character. The sign information is fed to the control circuit from a tape reader which reads binary coded tape. A binary decoder circuit responds to the binary information read by the tape reader and stores a pattern of lamp-energizing markers in the character memory circuits corresponding to the character involved which markers are sequentially fed to the inputs of the row shift register circuits. The tape is shifted one code position each time the last lamp energizing marker of a pattern of such markers representing one character leaves the character memory circuits.

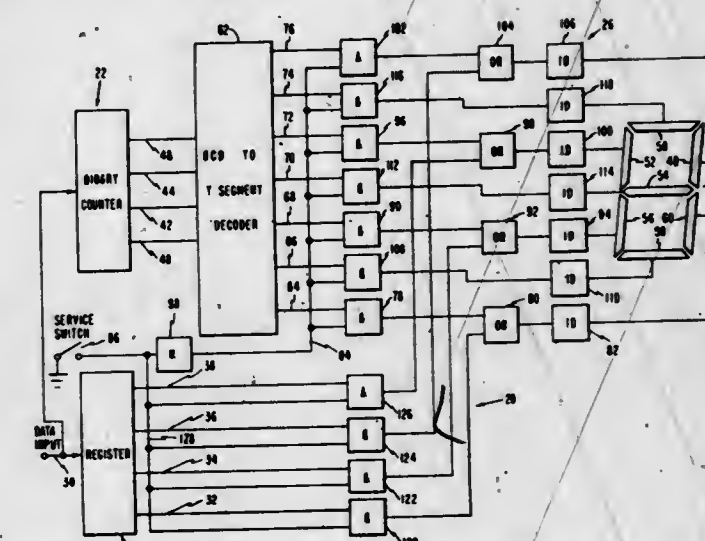
3,573,791

MULTIPLE USE INDICATOR

Karl O. H. Hesse, Arlington, Va., assignor to International Business Machines Corporation, Armonk, N.Y.
Filed Jan. 7, 1969, Ser. No. 789,568
Int. Cl. G08b 5/36

U.S. Cl. 340-339

7 Claims



A display system including a seven-bar indicator controlled by logic circuitry to selectively display in binary form coded input characters or to display the number of input characters entered into a register.

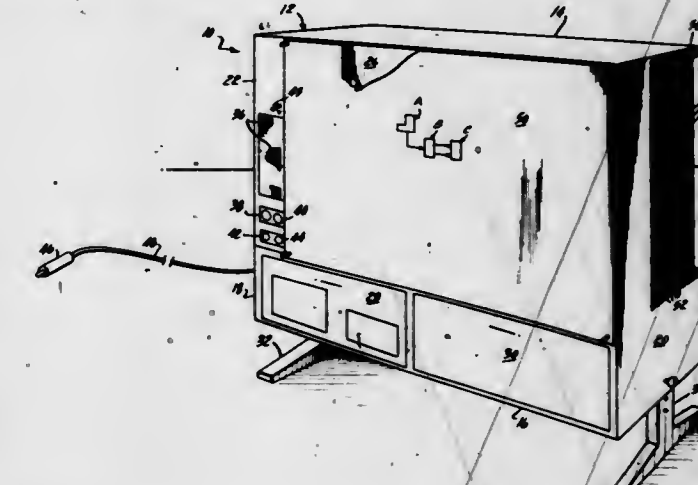
3,573,792

UNIVERSAL DISPLAY PANEL

Donald E. Reed, Winter Park, Fla., assignor to the United States of America as represented by the Secretary of the Navy
Filed Nov. 12, 1968, Ser. No. 775,082
Int. Cl. G09F 13/04

U.S. Cl. 340-339

12 Claims



A programmable, lighted display panel device is disclosed comprising a translucent panel, individual areas of which can

be back-lighted according to programmed circuitry including stepping switch means or single step switch means to control illumination of the pushbuttons and to control a program switch which, together with a wiring patch board, effect energization of predetermined groups of panel illuminating lamps. The circuitry includes means for regulating lamp brightness, for preventing lamp flicker during stepping, and for preventing undue inrush current through lamp-controlling contacts.

3,573,793

SHAFT ENCODER EMPLOYING PHASE SHIFTER DEVICE

Gunnar Axel Kihlberg, Ekorrvagen, Sollentuna, and Bo Hogstrom, Danderyd, Sweden, assignors to Jungner Instrument Aktiebolag, Stockholm, Sweden

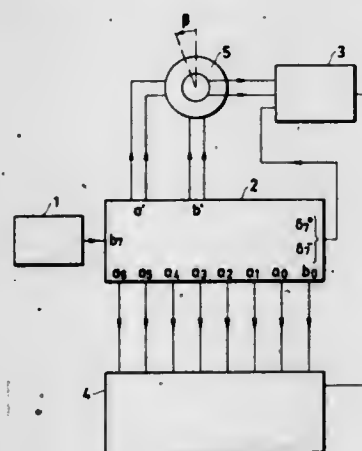
Filed Dec. 5, 1966, Ser. No. 599,094

Claims priority, application Sweden, Dec. 9, 1965, 15,971/1965

Int. Cl. H03k 13/20

U.S. Cl. 340-347

5 Claims



In a method and apparatus for generating digital information concerning the angular position of the rotor of a phase shifter, such as a resolver or a synchro, in which a multiphase AC voltage is supplied to the phase shifter to produce a rotating magnetic field which induces a secondary AC voltage of the same frequency as the supply voltage at a phase angle proportional to the angular position of the rotor, the simultaneous readout of a large number of phase shifters can be obtained by frequency dividing a control AC voltage of a predetermined frequency to form a plurality of AC voltages, forming the multiphase AC voltage and a code which varies cyclically with the same frequency as the multiphase AC voltage from the plurality of AC voltages, whereby the position of the vector of the rotating magnetic field derived from the multiphase AC voltage corresponds to a given value of the code at any given moment; and forming readout pulse at substantially the zero transition of the secondary voltage to thereby produce a readout or registration of the cyclic code.

3,573,794

ANALOG/DIGITAL PROCESSING TECHNIQUES

Malcolm D. Widenor, Sea Cliff, N.Y., assignor to North Atlantic Industries, Inc., Plainview, N.Y.

Filed May 11, 1967, Ser. No. 637,698

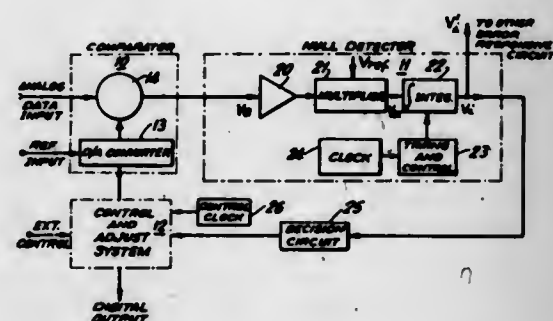
Int. Cl. H03k 13/20

U.S. Cl. 340-347

10 Claims

Systems for processing analog and digital data are disclosed herein and include techniques for converting analog data to digital data (a to d) and vice versa (d to a), as well as error-detection processing for optimizing system response. Several a/d systems are illustrated, one employing an AC analog input to a comparator which is coupled to a null detector system employing a voltage-to-frequency converter for supplying null responsive signals to a digitizer; another of the systems is of comparable configuration, but employs a multiplier-integrator combination in the null

detector system without utilizing voltage-to-frequency conversion. A third system of generally similar configuration utilizes both the multiplier-integrator and the



voltage/frequency conversion circuits. Provisions are also made for threshold control and other response shaping functions.

3,573,795

SYSTEMS FOR CONVERTING INFORMATION FROM DIGITAL-TO-ANALOG FORM AND VICE VERSA

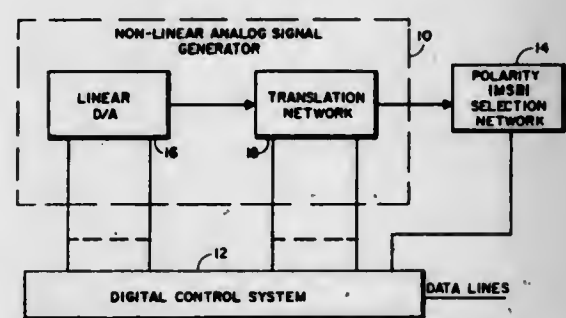
John O. Bowers, Jr., and Larry Nordstrom, Seminole, Fla., assignors to General Dynamics Corporation

Filed Mar. 6, 1968, Ser. No. 710,798

Int. Cl. H03k 13/04, 13/17

U.S. Cl. 340-347

6 Claims



High speed systems for nonlinear digital-to-analog and analog-to-digital conversion. The systems include a nonlinear analog signal generator which generates analog signals having amplitudes determined by the lower order bits of a digital code and which translates this analog voltage into an output analog voltage which is nonlinearly related to the code and a translation network including a multiplier which multiplies the first mentioned analog voltage by a factor related to the value of the higher order bits of the digital code. Effectively, this changes the slope of linearly variable analog signals generated in response to the lower order bits of the code. For digital-to-analog conversion, a digital control system responsive to the bits of a digital code operates the nonlinear signal generator to provide an analog voltage corresponding to the value of the digital code. For analog-to-digital conversion, a comparator responsive to the output analog voltage from the generator changes the code presented by the digital control systems and by successive approximations obtains the code which corresponds to the value of an input analog system.

3,573,796

SUCCESSIVE APPROXIMATION ANALOG-TO-DIGITAL CONVERTERS

Umar Querishi, Farnborough, England, assignor to The Solartron Electronic Group Ltd., Farnborough, England

Filed Apr. 5, 1968, Ser. No. 719,136

Claims priority, application Great Britain, May 17, 1967, 22890/67

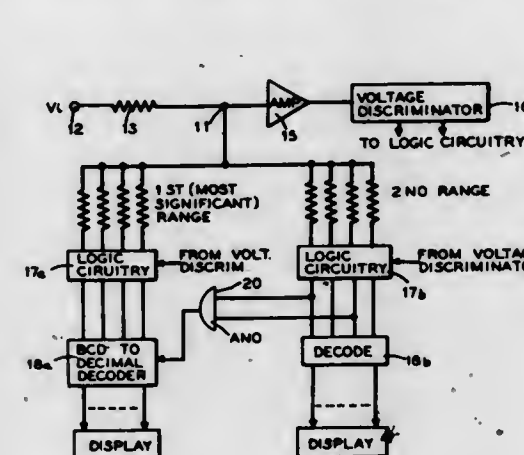
Int. Cl. H03k 13/04

U.S. Cl. 340-347

4 Claims

In a successive approximation digital voltmeter including a signal comparator and a plurality of decade ranges, the second most significant decade range is allowed to contribute more than 9 of its digits to the comparison signal which is compared by the comparator against an input signal under

measurement. The excess contribution made available by this resistances connected in parallel therewith are short-range is utilized to compensate for voltage overshoots in the circuited, and difference circuit bridged across the



comparator output signal which may result when a relatively large valued signal is applied to the comparator by the most significant decade range.

3,573,797

RATE AUGMENTED DIGITAL-TO-ANALOG CONVERTER

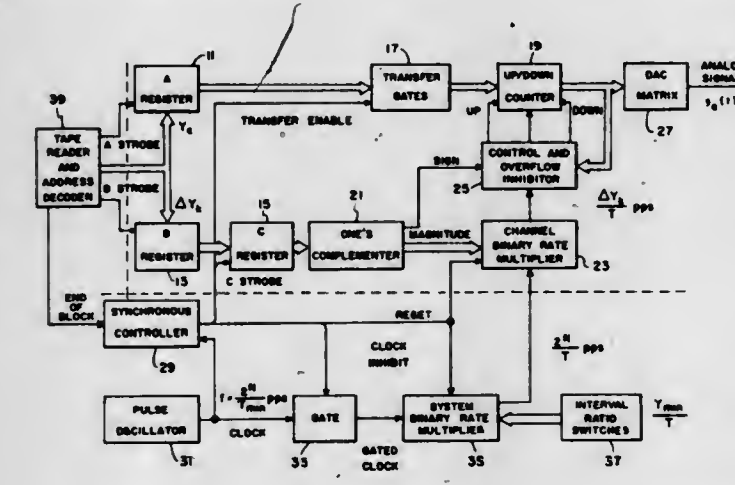
Sheldon Kopelson, Newport News, Va., assignor to the United States of America as represented by the Administrator of the National Aeronautics and Space Administration

Filed Oct. 24, 1968, Ser. No. 770,209

Int. Cl. H03k 13/02

U.S. Cl. 340-347DA

8 Claims



This disclosure describes a rate augmented digital-to-analog converter for computed time-dependent data. The converter produces a smooth continuous function by digitally incrementing functions samples at a rate proportion to a predicted functional change over each sample interval. The result is continuously converted to an analog voltage. The conversion produces an output which is, in effect, the sum of a linear ramp and the function sample. The converter input data are the computed sample and the change which is predicted by the solution of an n th-order extrapolation formula. The computer providing the function change information to the converter also solves the n th-order extrapolation formula.

3,573,798

ANALOG-TO-DIGITAL CONVERTER

Paul A. Reiling, New Providence, N.J., assignor to Bell Telephone Laboratories, Inc., Murray Hill, Berkeley Heights, N.J.

Filed Dec. 18, 1967, Ser. No. 691,475

Int. Cl. H03k 13/17

U.S. Cl. 340-347

12 Claims

A plurality of parallel transistor-resistor combinations are serially connected into two conduction paths extending between a constant current source and ground. When an analog input signal is applied in common to the base terminals of the transistors, a certain number of the

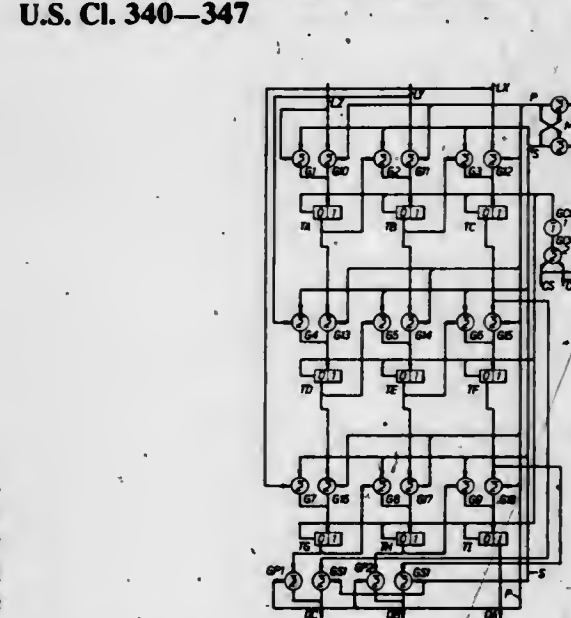
conduction paths yields an output representative of a binary digit.

3,573,799
SERIAL TO PARALLEL CONVERTER
James Walter Drinnan, and Roy Harold Mauger, Liverpool, England, assignors to Automatic Telephone & Electric Company Limited, Liverpool, England
Filed Oct. 10, 1968, Ser. No. 766,415
Claims priority, application Great Britain, Oct. 11, 1967, 46371/67

U.S. Cl. 340-347

Int. Cl. G06f 5/04

6 Claims



A serial to parallel converter for converting serially transmitted data into parallel form, comprises rows of toggles (TA, TB, TC-TD, TE, TF-TG, TH, TI) which are arranged to be controlled for storing in turn the serial data received from respective inputs (LZ, LY and LX). The data stored in parallel form in toggles (TA, TB and TC) from input (LZ) is moved to toggles (TD, TE and TF) and next to toggles (TG, TH and TI) as serial data is received sequentially from inputs (LY and LX).

3,573,800

SERIAL ANALOG TO DIGITAL CONVERTER

Thomas E. Gardner, Sunnyvale, Calif., and Jack E. Steffens, West Caldwell, N.J., assignors to United Aircraft Corporation, East Hartford, Conn.

Filed Nov. 14, 1968, Ser. No. 775,667

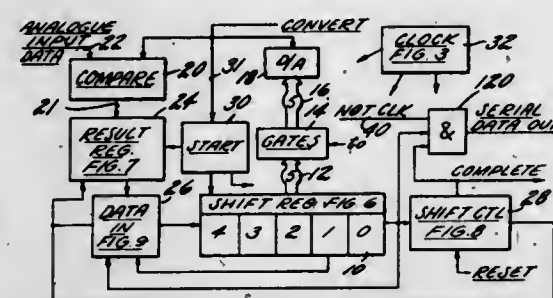
Int. Cl. H03k 13/02

U.S. Cl. 340-347AD

16 Claims

A serial analog-to-digital converter, utilizing well-known successive approximation techniques, employs a shift register

with a variable shift control and selective high order data insertion to eliminate the need for timing registers and nonlinear characteristic by selection of the weighing resistance via a reversible shift register.



complex logic while providing low to high order serial data output capability in a simple configuration.

3,573,801

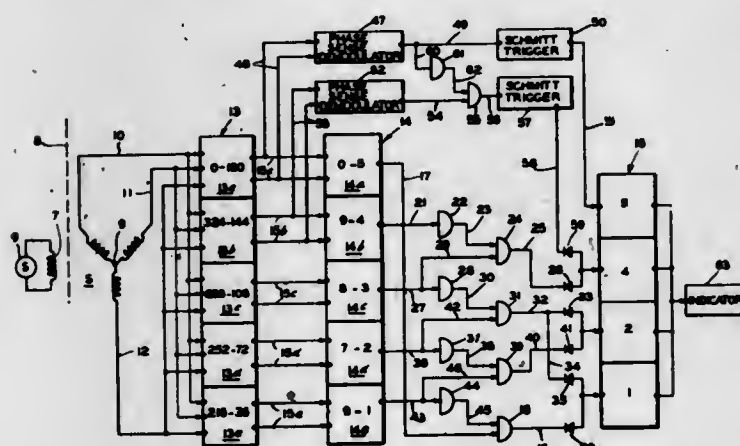
SYNCHRO TO DIGITAL CONVERTER

Richard L. Cohen, Old Bridge, and Frederick R. Sylvander, Rutherford, N.J., assignors to The Bendix Corporation, Teterboro, N.J.

Filed Jan. 18, 1968, Ser. No. 698,929
Int. Cl. G08c 9/04

U.S. Cl. 340-347

14 Claims



A synchro to digital converter which utilizes the null position to actuate a series of bistable devices to provide the digital count together with phase detectors to resolve ambiguities.

3,573,802

BIPOLAR ANALOG-TO-DIGITAL FEEDBACK ENCODER UTILIZING A REVERSIBLE SHIFT REGISTER

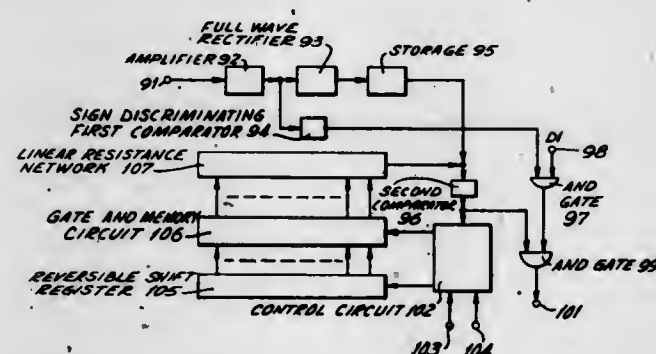
Masao Kawashima; Shigehiko Hinoshita; Shunroku Sasaki, Yokohama-shi, and Shoichi Kurita, Kawasaki-shi, Japan, assignors to Fujitsu Limited, Kawasaki, Japan

Filed Mar. 6, 1969, Ser. No. 804,801

Claims priority, application Japan, Mar. 9, 1968, 43-15295
Int. Cl. H03k 13/00

U.S. Cl. 340-347

7 Claims



In a nonlinear coder, a weighing resistance network for linear encoding is controlled in accordance with the

An analog-digital converter has an input for an analog waveform and a reference voltage generator connected to a

3,573,803
TIME DIVISION MULTIPLEX DIGITAL-TO-ANALOG CONVERTER

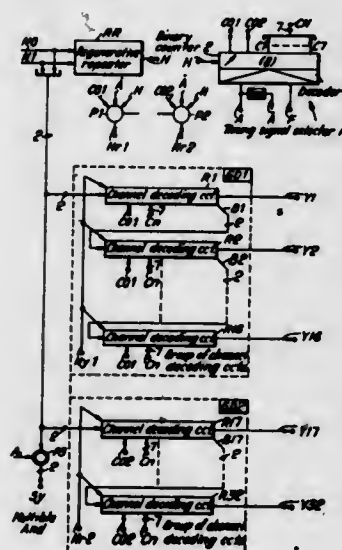
Andre Edouard Joseph Chatelon, Montrouge, and Didier Charles Strube, Garches, France, assignors to International Standard Electric Corporation, New York, N.Y.

Filed Jan. 24, 1969, Ser. No. 793,781

Claims priority, application France, Feb. 20, 1968, 140477
Int. Cl. H03k 13/02

U.S. Cl. 340-347

10 Claims



A plurality of binary counters are provided, each of which are assigned to a different channel code, and arranged in two groups. A master binary counter advancing in synchronism with the timing of the input codes and logic circuitry associated with each counter cooperate to cause the counters of one group to convert the code signals of that group and simultaneously connect the counters of the other group in series and to function as shift registers to store serial input codes. The functions of the group of counters are then reversed. The counters of a group in which codes have been previously stored cooperate with the master binary counter and a bistable device coupled to each counter to produce PWM pulses which are filtered to reproduce the analog signals represented by the stored codes.

3,573,804

ANALOG-DIGITAL CONVERTER

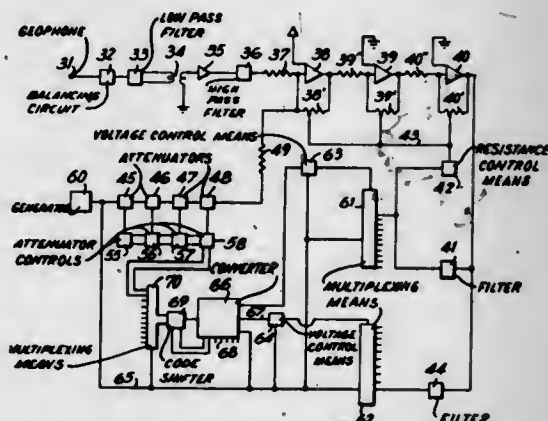
Claude H. Picou, Paris, France, assignor to Compagnie Generale de Geophysique, Paris, France

Filed Dec. 23, 1966, Ser. No. 604,211

Claims priority, application France, Jan. 10, 1966, 45,297
Int. Cl. H03k 13/02

U.S. Cl. 340-347

4 Claims



device for modifying the output of the generator in selected amplitude steps. A variable gain amplifier is arranged to receive both the analogue input and the modified reference voltage and is connected to a device for producing at repeated instants a digital signal corresponding to the difference between the instantaneous analog input and the modified reference voltage, and a further signal to the modifying device, should the difference be outside a predetermined range. The modifying device is responsive to the further signal to alter the reference voltage fed to the amplifier such that the difference is maintained within the predetermined range.

or automatically in response to a change in operating conditions.

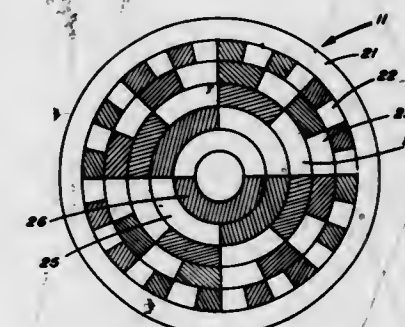
3,573,806
NONCONTACT ENCODER INTERPOLATION TECHNIQUE

Aaron David Klein, Rockville, Md. (4016 Briars Road, Olney, Md. 20832)

Filed Sept. 30, 1968, Ser. No. 763,861
Int. Cl. G08c 9/06

U.S. Cl. 340-347

7 Claims



This invention is directed to an optical shaft encoder. The encoder utilizes a binary coded disc whose last track is clear. The output of the photodetector associated with this track is compared by appropriate circuitry with the output of two matched detectors each having an area half that of the first detector. This comparison yields a signal which is an angular function of the position of the disc. A decimal to binary converter is utilized to provide a binary representation of the comparison signal.

3,573,807

DIGITAL ENCODER APPARATUS

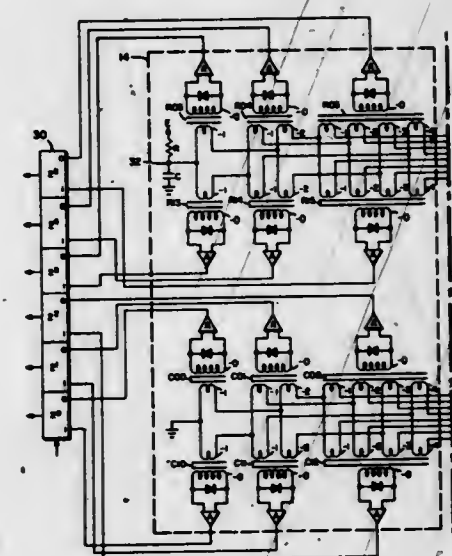
George T. Osborne, St. Paul, Minn., assignor to Sperry Rand Corporation, New York, N.Y.

Filed July 30, 1969, Ser. No. 846,121

Int. Cl. G06f 3/02

U.S. Cl. 340-365

3 Claims



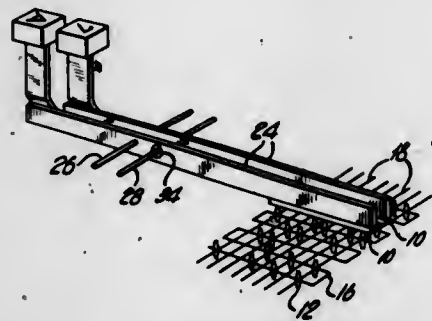
A digitally operable quantity measuring and conversion apparatus is described for deriving precise measurements in terms of recognized measurement units (such as inches or centimeters). The apparatus includes a measuring instrument such as an interferometer position gauging device which develops a number of direction indicating, fringe count pulsed waveform electric signals that are representative of the position of an equipment (such as the working head of a numerically controlled machine tool) being controlled measured with respect to a reference position. The measuring and conversion apparatus further includes digitally operable numerical processing means which preferably comprises a pulse rate multiplier including a reversible pulse rate reference counter. Direction logic circuits are provided for supplying the input pulses fringe count electric signal representative of the quantity (position) to be measured to the reversible pulse rate counter to cause it to count up or down in accordance with the direction information of the input pulsed electric signals. The conversion apparatus further includes pulse rate multiplier gates, and a conversion factor read in circuit for reading the value of a conversion factor to be multiplied into the pulse rate multiplier. The pulse rate multiplier gates are responsive to the output of the reversible pulse rate counter, the conversion factor read in circuit, and the direction logic circuit for providing at the output of the conversion apparatus a desired output summation signal representative of the summation of one incremental conversion factor value for each incremental input fringe count electric signal pulse, and hence representative of the product of the input fringe count pulses multiplied by the conversion factor. In preferred arrangements, conversion factor changing means are included as part of the conversion factor read-in circuit for changing the value of the conversion factor either manually

A matrix of switches is arranged in columns and rows with separate column and row conductors coupling, in parallel, all the switches of the respectively associated column and row. A closed switch selects one column conductor and one row conductor, the opposite ends of each of which are serially coupled to a number of input windings that are associated with a like number of transformers. Each transformer is assigned a respectively associated binary value whereby the closing of a switch concurrently induces in the associated output windings output signals that are representative of the associated binary value.

3,573,808

KEYBOARD OR OTHER SIMILAR APPARATUS FOR CONVERTING MECHANICAL MOVEMENT TO A BINARY ELECTRICAL SIGNAL USING PERMANENT MAGNET INHIBITED CORES

Charles B. Pear, Jr., Centerport, N.Y., assignor to Potter Instruments Company, Inc., Plainview, N.Y.
Filed Mar. 25, 1968, Ser. No. 715,857
Int. Cl. G08c 19/28; H04I 15/12
U.S. Cl. 340—365 4 Claims

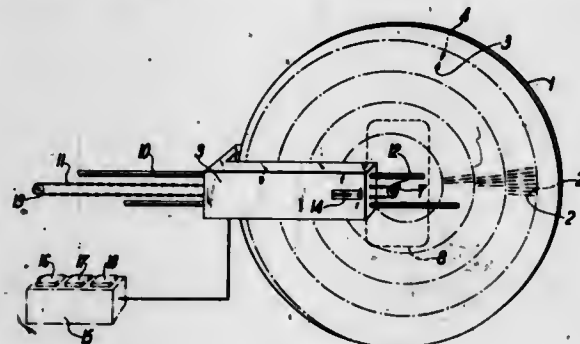


The specification and claims disclose a keyboard for encoding information in a binary form in which a planar array of ferromagnetic cores are normally inhibited from switching by permanent magnets. One of the magnets is raised each time a key is struck and the cores adjacent this magnet are thereby uninhibited and produce an output indicative of the struck key.

3,573,809

DEVICE FOR ENCODING A LIST OF TERMS

Patrick Magnien, Le Mesnil Saint Denis, France, assignor to Commissariat A L'Energie Atomique, Paris, France
Filed May 15, 1968, Ser. No. 729,207
Claims priority, application France, May 19, 1967, 107,093
P 15 37 278.8
U.S. Cl. 340—365 7 Claims



A device for encoding a finite list of terms disposed in alphabetical order which comprises in addition to said list a list of encoded indications relating to each of said terms, a system of visual indications of said terms and a system for reading corresponding encoded indications. According to an essential feature, each list is disposed in the form of a spiral of constant pitch on each of the two faces of a single rotary disc, the terms and corresponding encoded indications being located substantially in opposite and back-to-back relation.

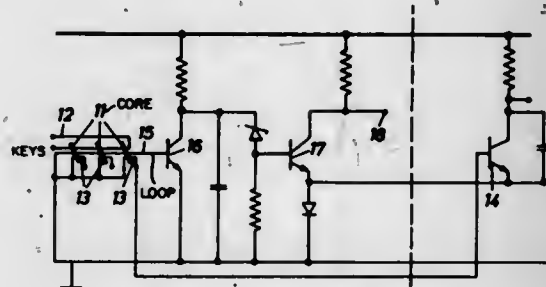
3,573,810

MECHANICALLY ACTUATED MAGNETIC SWITCH ARRANGEMENT

Lorenz Hanewinkel, and Winfried Schneider, Paderborn, Germany, assignors to Nixdorf Computer Aktiengesellschaft
Filed Nov. 12, 1968, Ser. No. 775,059
Claims priority, application Germany, Nov. 10, 1967,
P 15 37 278.8
Int. Cl. G08c 9/00 7 Claims

A mechanically actuated magnetic switch arrangement includes a plurality of closed magnetic cores and a plurality of windings on each core. A magnetic saturation element is

near each core, and means respond to actuation of a switch lever associated with each core for permitting or preventing saturation of that core. A rest-position loop is connected to

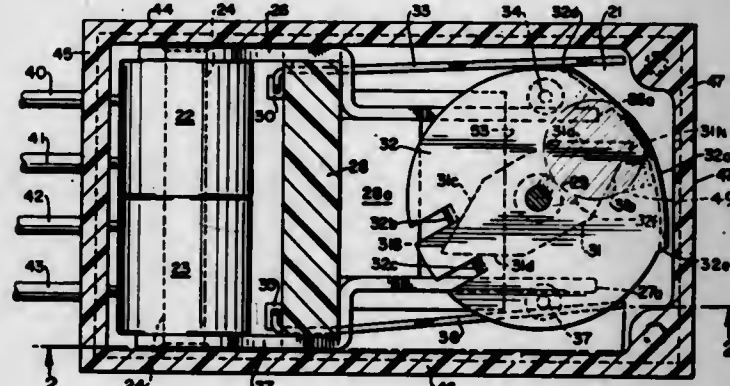


one winding on each core and delivers an input signal to an amplifier. The output of the amplifier is connected to an electronic lock for preventing more than one signal at a time from emanating from the switch arrangement.

3,573,811

MAGNETICALLY OPERATED TWO POSITION ELECTRICAL INDICATOR

William A. Knecht, RFD #2, New Hartford, Conn. 06057
Continuation-in-part of application Ser. No. 570,937, Sept. 8, 1966, now abandoned. This application July 24, 1967, Ser. No. 655,641
Int. Cl. G08b 5/14, 5/22
U.S. Cl. 340—373 35 Claims



An indicator to show either of two conditions of an electrical circuit and including an electromagnetic structure with poles and coil means to energize the poles alternatively to either magnetic polarity, and also including a permanently magnetized armature with indicia thereon, either directly or on an attached member, the electromagnetic structure and armature with indicia being included within a housing that has at least one window through which the indicia may be seen to indicate whether the armature is in one or the other of two end positions determined by the current in the coil in response to the external circuit. The poles of the electromagnet may cooperate with the permanently magnetized armature to hold the latter in either of the end positions while allowing easy transfer to the other end position when current flow is reversed.

3,573,812

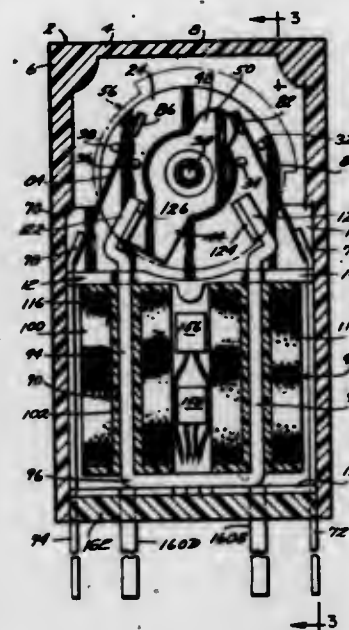
ELECTROMAGNETIC INDICATOR

George E. Pihl, Abington, Mass., assignor to Miniature Electronics Components Corp., Holbrook, Mass.
Filed Nov. 6, 1967, Ser. No. 680,668
Int. Cl. G08b 5/22 11 Claims

A two-state electromagnetically actuated indicator providing in each state a display that is magnetically latched, regardless of the removal or reapplication of voltage, until a

proper reset signal is applied. The illustrated embodiment also features internal switching for controlling associated

photographed simultaneously with the electrical signal waveform produced on such tube to indicate the horizontal and vertical scale units of such waveform.



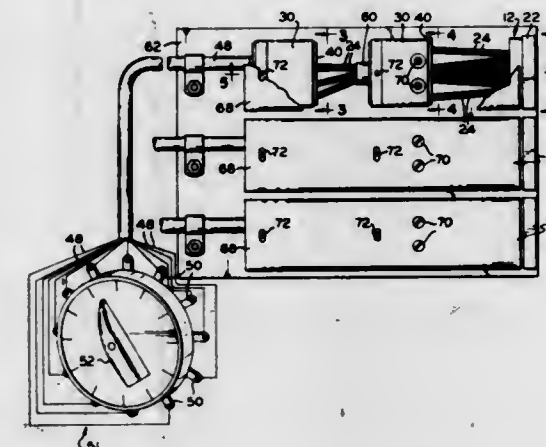
equipment or for switching the electromagnet unit so that drive energy is required only during display transition.

3,573,813

LIGHT IMAGE DISPLAY APPARATUS INCLUDING SELECTIVELY ILLUMINATED LIGHT PIPING ELEMENTS

Andrew R. Burns; Peter J. Unger, and Robert J. Rossman, Beaverton, Oreg., assignors to Tektronix, Inc., Beaverton, Oreg.
Filed Oct. 25, 1968, Ser. No. 770,483
Int. Cl. H04I 23/00, 3/00 15 Claims

U.S. Cl. 340—380



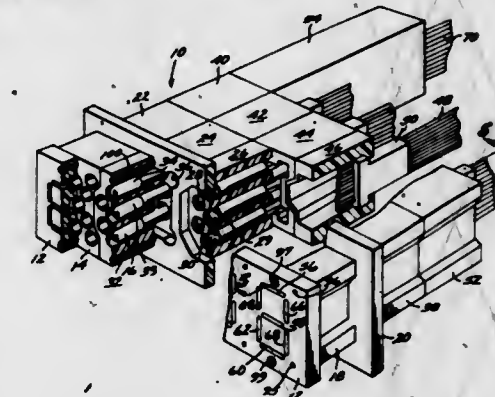
A light image display apparatus is described in which a plurality of light transmission elements are employed together with means for selectively applying light to the input ends of such elements in order to form a light image display by the illuminated output ends of such elements and to successively produce different images in the same display area by illuminating different combinations of elements. The light transmission elements may be flexible fibers of plastic or glass which are arranged in optically noncoherent bundles with the input ends of all elements in a bundle being irradiated simultaneously by the same light source and with the output ends of such elements being supported in different relative positions and spaced over a greater area than the input ends. The display apparatus may be used as a switch position readout for the switches on a cathode-ray oscilloscope controlling its vertical amplifier gain and horizontal sweep rate by turning light bulbs on and off with such switches to selectively illuminate the light transmission elements and thereby produce light image displays of the switch positions. The switch position readout displays are positioned adjacent the faceplate of the cathode-ray tube employed in such oscilloscope, so that they may be viewed or

3,573,814

LIGHTED DISPLAY UNITS

William J. Lang, Orange, Calif., assignor to Symbolic Displays, Inc., Orange, Calif.
Filed June 7, 1968, Ser. No. 735,255
Int. Cl. G09f 9/00 7 Claims

U.S. Cl. 340—381



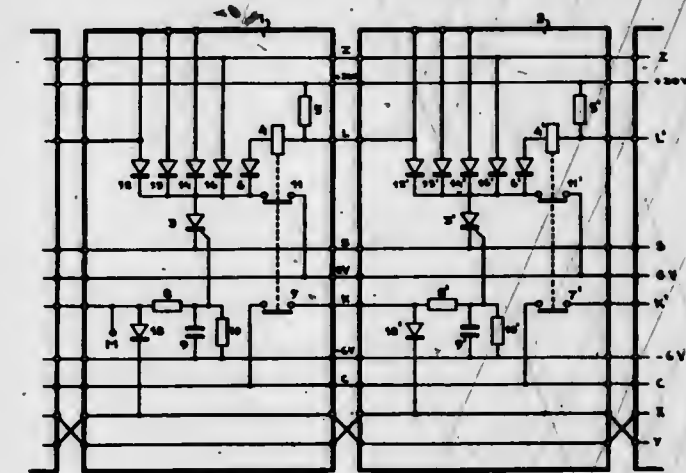
This invention relates to improvements in lighted display units of the kind in which individual characters are associated with one another to form a composite display. In the embodiment described, the unit is modularized in part with each module being specific to one character, so that a composite display is formed by combining modules. There is provided, with respect to each character to be displayed, a front panel section including indicia portions which when lighted provide a representation of a selected character, a heat sink, and a lamp socket and socket holder assembly which is provided with lamp sockets oriented to underlie the individual segments of the character to be displayed. The heat sink and light shield unit is sandwiched between the front panel and the socket holder and is provided with individual bores of size to accommodate a single lamp bulb in alignment with the socket for that bulb and the indicia section to be lighted thereby.

3,573,815

MEASURING POINT SCANNER

Johannes Leijten, Woudenberg, Netherlands, assignor to Electrofact N.V., Amersfoort, Netherlands
Filed June 13, 1968, Ser. No. 736,823
Claims priority, application Netherlands, June 19, 1967, 6708520
Int. Cl. G08b 19/00 23 Claims

U.S. Cl. 340—413



A device for successively scanning and monitoring a plurality of measuring points which device provides an alarm when a measured point exceeds a predetermined value and a different alarm when there is a malfunction in the device itself.

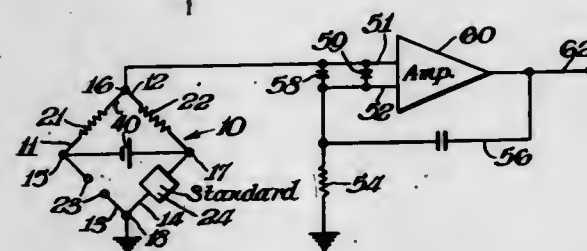
3,573,816

PRODUCTION OF ELECTRIC CIRCUIT ELEMENTS
Walter Helgeland, Nashua, N.H., assignor to Sprague Electric Company, North Adams, Mass.

Filed Apr. 25, 1966, Ser. No. 544,731
Int. Cl. G08b 1/08

U.S. Cl. 340-419

4 Claims



A method and apparatus is provided for producing electrical circuit elements at a high rate and with accurate electrical characteristics. An amplifier is provided with a DC voltage input which is changing in one direction in response to a changing characteristic of an electric circuit element under manufacture. When the input voltage, together with a regenerative feedback from the amplifier output, reaches a predetermined value, the amplifier produces a pulse output which can be used to terminate the circuit element manufacture.

3,573,817

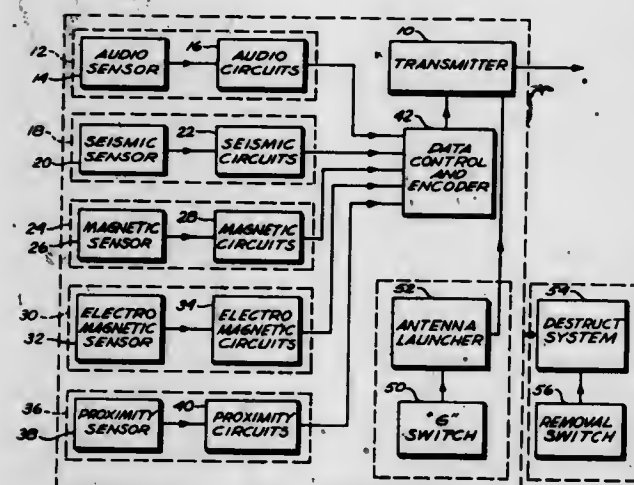
MONITORING SYSTEM

Artie E. Akers, San Diego, Calif., assignor to North American Rockwell Corporation

Filed Feb. 28, 1968, Ser. No. 710,710
Int. Cl. G08b 19/00, 15/00

U.S. Cl. 340-420

8 Claims



An electronic monitoring system comprising one or more remotely positioned monitoring units has a plurality of different types of sensors for detecting intrusions into the monitored area. Each type of sensor is sensitive to a different phenomenon, and their combined output signals identify an intruding target; since each target tends to have a distinctive target signature.

The sensor signals are transmitted to a monitoring station, where an operator can determine the action to be taken.

3,573,818

FOLLOW-LEADER STATIONKEEPER SYSTEM
William Tobin Lennon, Jr., Tonawanda; Lewis Michnik, Buffalo, and Allen Burdell Johnson, North Tonawanda, N.Y., assignors to Sierra Research Corporation

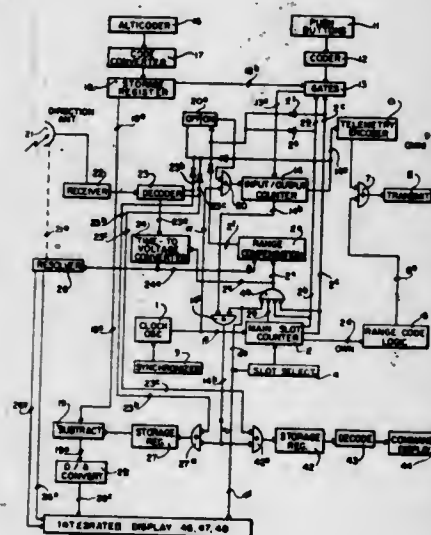
Filed Aug. 15, 1968, Ser. No. 752,854
Int. Cl. G01s 9/56

U.S. Cl. 343-6.5

10 Claims

A stationkeeping system for maintaining the positions of aircraft operating in a follower mode with respect to other

nearby aircraft which may be designated to operate in a leader mode, all aircraft having accurately synchronized time clocks, and the aircraft transmitting pulse groups during their own time slots, marking their positions and also telemetering other encoded data such as altitude and intended maneuvers. Each follower aircraft receives all such transmissions during time slots in which they were transmitted by other aircraft, and selects a particular slot belonging to an aircraft which it



chooses to follow. It processes the received data and displays it by a cluster of instruments showing spacing relative to the selected aircraft both in the direction of flight, and transversely thereof, as well as differential altitude and intended maneuvers, such instruments including means for entering offsets defining relative positions which it is desirable for the follower to maintain.

3,573,819

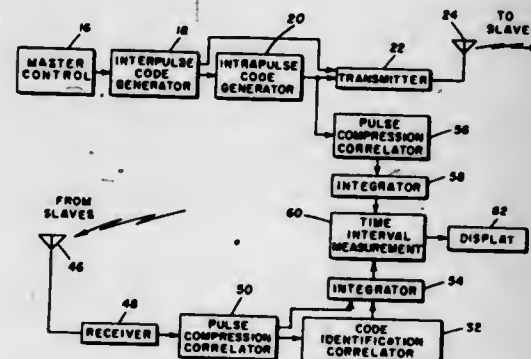
RADIO POSITION DETERMINING SYSTEM

Jack Scott Mason, Richardson; Harry Allen Currie, Farmers Branch; Kenneth D. Maxwell, Dallas; Richard Allen Perry, Richardson, and Mitchell M. Wilkinson, Dallas, Tex., assignors to Texas Instruments Incorporated, Dallas, Tex.

Filed Apr. 16, 1969, Ser. No. 816,509
Int. Cl. G01s 9/06, 9/56

U.S. Cl. 343-6.5

4 Claims



A master station onboard a vessel transmits coded pulses to a pair of shore stations. The shore stations respond with transmissions of coded pulses which are received by the master station. The round trip traveltime of the pulses is then measured to compute the distance of the vessel from each of the shore stations for determination of the position of the vessel. Pulse compression techniques are utilized by the

system in order to provide accurate resolution at ranges up to several hundred miles from shore and to enable operation of the system at all times without substantial degradation of resolution accuracy.

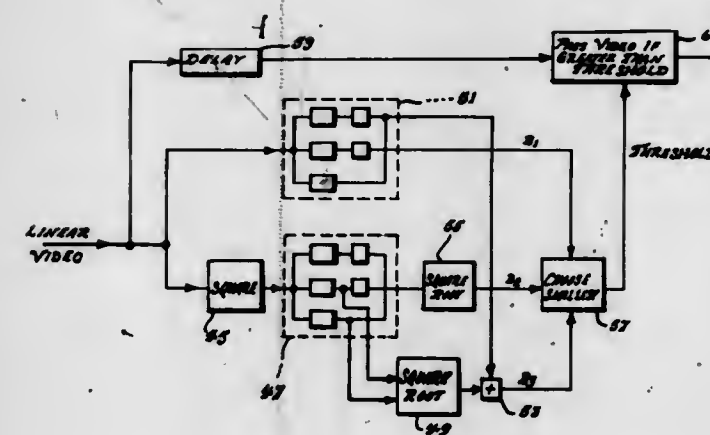
3,573,820

METHOD AND SYSTEM OF RANGE SIDELobe REJECTION IN A MULTITARGET ENVIRONMENT
Peter K. Bohacek, Morris Township, N.J., assignor to the United States of America as represented by the Secretary of the Air Force

Filed Apr. 8, 1969, Ser. No. 814,317
Int. Cl. G01s 9/02, 7/28

U.S. Cl. 343-7

3 Claims



A method and system of determining range sidelobe radar return by forming two thresholds, one formed by coherent addition and the other formed by rms addition and then the smaller threshold is selected. The video signal is then compared to the selected threshold.

3,573,821

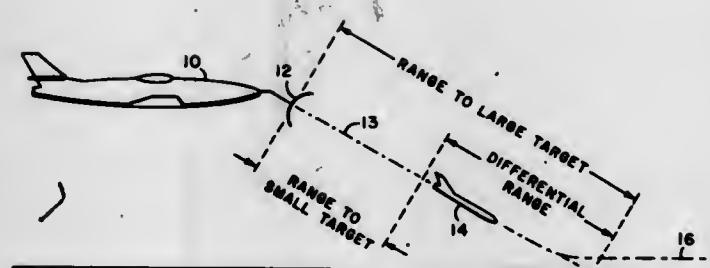
DIFFERENTIAL RANGING SYSTEMS

Neil C. Kern, Scottsdale, Ariz., assignor to Motorola Inc., Franklin Park, Ill.

Filed Jan. 10, 1969, Ser. No. 790,327
Int. Cl. G01s 9/14

U.S. Cl. 343-7.3

2 Claims



A radar transmitter and receiver showing a single antenna system of the monopulse type tracks a small target having a relative motion with respect to a large target, both located on a common boresight. A differential ranging circuit measures the difference between the tracked small target and the tracked large target. Upon the differential range reaching a predetermined threshold, a command signal is generated and transmitted to the small target causing it to perform a function.

3,573,822

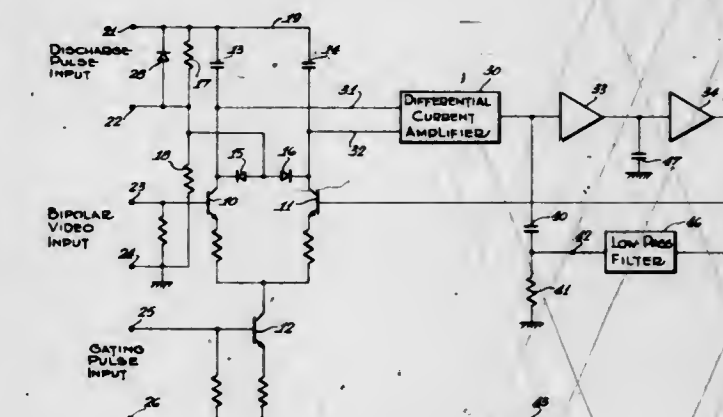
RANGE GATED DOPPLER FILTER

Thomas W. J. Kennedy, Belleville, Ontario, Canada, assignor to Northern Electric Company Limited, Montreal, Quebec, Canada

Filed Sept. 18, 1969, Ser. No. 859,062
Int. Cl. G01s 9/42; H03k 5/20

U.S. Cl. 343-7.7

5 Claims



A range-gated doppler filter having a balanced input switch with cancelling feedback supplied to the switch from a following low-pass filter section.

3,573,823

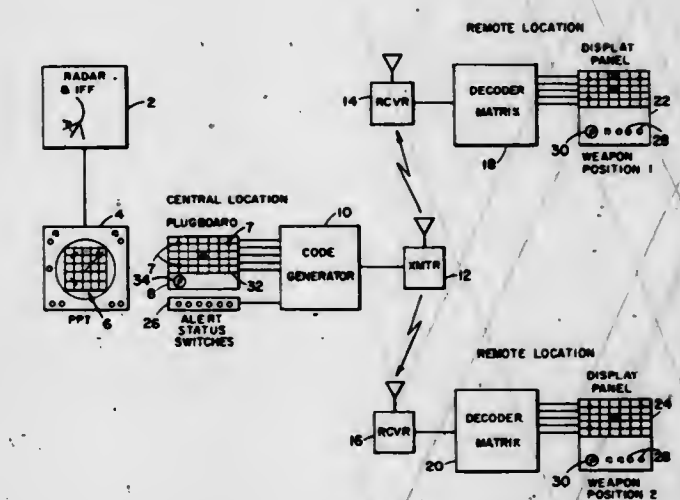
METHOD AND APPARATUS FOR ALERTING REMOTE PERSONNEL OF AIRCRAFT, LOCATION AND IDENTIFICATION

John A. French, Huntsville, Ala., assignor to the United States of America as represented by the Secretary of the Army

Filed Sept. 3, 1969, Ser. No. 854,844
Int. Cl. G01s 7/12, 9/56

U.S. Cl. 343-6

5 Claims

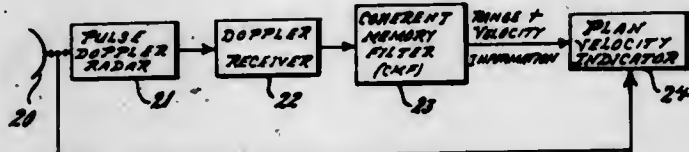


The present invention is directed to the method and apparatus for detecting aircraft, identifying the aircraft as friend or foe, and transmitting alerting signals, the position and identity of the aircraft from a central location to a plurality of remote locations. A radar is used to detect aircraft and identify the aircraft as friend or foe. The position of the aircraft is disclosed on a plan position indicator (PPI). An operator transfers the information (position and identity) on the PPI to a plugboard by placing an appropriate plug in the plugboard to indicate the aircraft as friend or foe and to show the location of the aircraft. The information from the plugboard is encoded and transmitted to a plurality of remote locations. The information received at the remote locations is decoded and displayed such that an operator at the remote location may determine the location and identity of the aircraft detected by the radar.

3,573,824
WIND SHEAR AND TURBULENCE RADAR INDICATOR
 Graham M. Armstrong, Framingham, and Ralph J. Donaldson, Jr., Sudbury, Mass., assignors to the United States of America as represented by the Secretary of the Air Force

Filed Apr. 21, 1969, Ser. No. 817,945
 Int. Cl. G01s 9/42; G01w 1/00
 U.S. Cl. 343-9

2 Claims

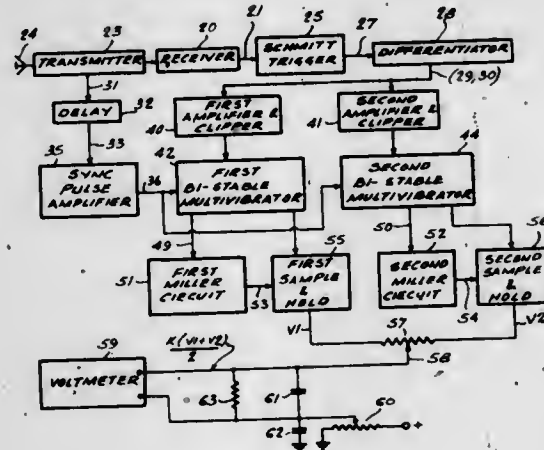


A wind shear and turbulence radar indicator in which velocity information is obtained from a coherent memory filter and presented rapidly and conveniently on an intensity modulated PPI scope as the doppler radar antenna rotates in azimuth. Regions of wind shear and turbulence can be identified immediately by a characteristic signature on this display.

3,573,825
RADAR SYSTEM
 Ray L. Westby, Ottawa, Ontario, Canada, assignor to Canadian Patents and Development Limited, Ottawa, Ontario, Canada

Filed June 11, 1969, Ser. No. 832,227
 Int. Cl. G01s 9/20
 U.S. Cl. 343-13

8 Claims



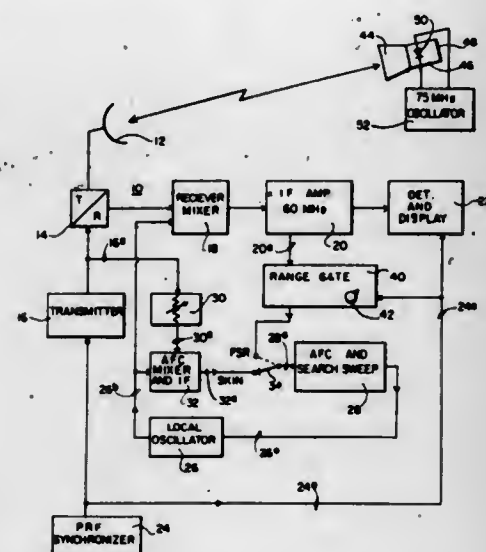
A high-accuracy radar altimeter which measures the average height above sloping ground by use of a circuit sensitive to the timing of the mean peak of each return pulse while eliminating the effect of signals reflected from vegetation. Verification of the receipt of a return pulse is achieved by use of Miller circuits which are triggered on by a return pulse and off by a delayed sample of the corresponding transmitted pulse.

3,573,826
BEACON CALIBRATED AFC RADAR
 Duane G. Fredericks, Lockport, and Lewis Michnik, Buffalo, N.Y., assignors to Sierra Research Corp.
 Filed Apr. 10, 1969, Ser. No. 815,067
 Int. Cl. G01s 7/40
 U.S. Cl. 343-17.7

6 Claims

In combination with a radar unit having automatic frequency control means for tuning its receiver accurately to its transmitter, means for calibrating the radar unit with respect to range by using a frequency shift reflector located a known distance from the radar unit, and serving to provide echos at a different frequency than normal skin reflections, the radar unit being provided with a range gate to selectively pass substantially only the shifted reflections through the

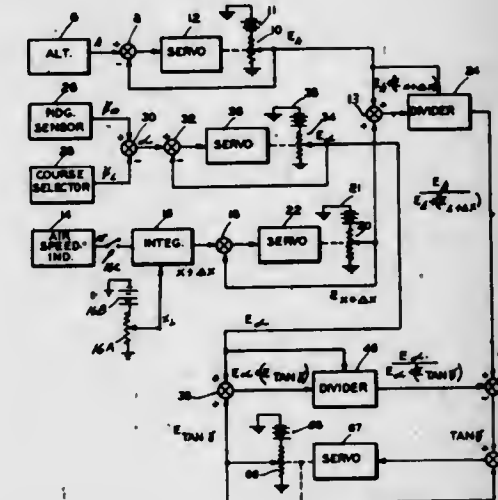
receiver and with switching means to transfer the automatic frequency control circuit to be responsive to the frequency of



the shifted reflections rather than to the radar's transmitted frequency.

3,573,827
RUNWAY CENTERLINE DISPLAY
 Isaac De Botton, Pinebrook, and Arthur Simon, Fairlawn, N.J., assignors to The Bendix Corporation
 Filed Apr. 1, 1968, Ser. No. 717,552
 Int. Cl. G01s 1/16
 U.S. Cl. 343-108

7 Claims



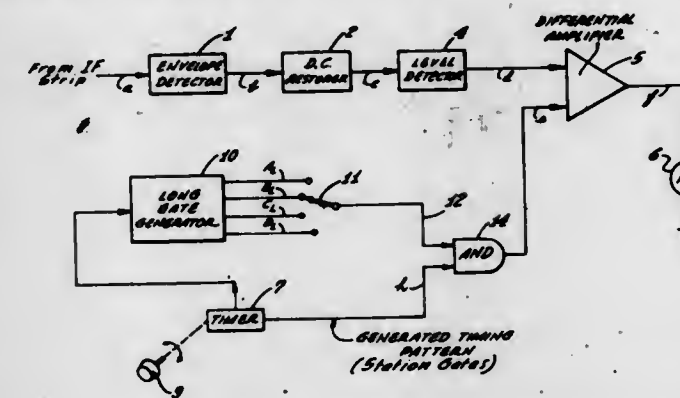
Apparatus using a signal from a ground based station, a signal corresponding to the known heading of a runway and signals provided by onboard sensors in conjunction with pilot inputs to present to the pilot of an aircraft in a head-up display a visual representation of a runway centerline for landing the aircraft under all weather conditions. A voltage is provided in response to aircraft position and attitude signals for adjusting the position of the displayed centerline so that said centerline is always coincident with the true runway centerline.

3,573,828
SYNCHRONIZATION INDICATOR
 Opie D. Hawley, San Pedro, Calif., assignor to Northrop Corporation, Beverly Hills, Calif.
 Filed Apr. 15, 1969, Ser. No. 816,353
 Int. Cl. G01s 1/30
 U.S. Cl. 343-105

7 Claims

In order to synchronize a locally generated timing pattern in a receiver with a transmitted timing pattern as received, the strongest signal in the received pattern is separated from all others and transformed into a first pulse having the same

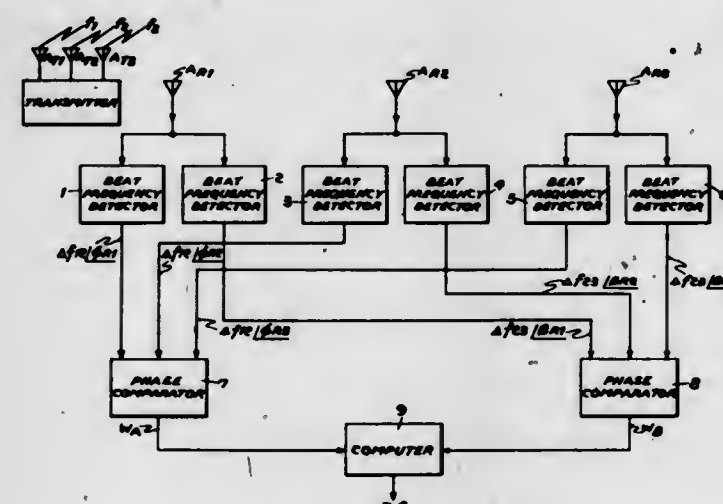
timing as that strongest signal. At the same time, the pulse of the generated pattern which corresponds to the strongest station at the present receiver location, as determined by the operator's knowledge, is compared in time relation to the



first pulse, and the generated pattern is advanced or retarded until exact synchronism of these two is achieved, as indicated by the reading of a meter in the output of a differential amplifier.

3,573,829
POSITION DETERMINING MOVING HYPERBOLIC SYSTEM
 Frank H. Johnson, Ridgewood, and Murray Hoffman, Livingston, N.J., assignors to International Telephone and Telegraph Corporation, Nutley, N.J.
 Filed Jan. 29, 1969, Ser. No. 794,978
 Int. Cl. G01s 1/04, 1/30
 U.S. Cl. 343-105

10 Claims



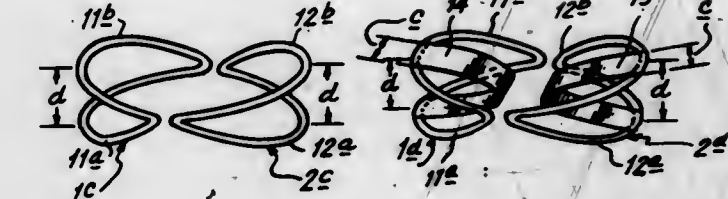
In order to determine relative position, three spaced antennas A_1 , A_2 , A_3 , are coupled to a transmitter and respectively radiate f_1 , f_2 , and f_3 to provide two sets of moving hyperbolic isophases in space. A receiver at a distance, having three spaced antennas, measures the velocity of each set of isophases as they sweep past said antennas by a phase comparison of the beat frequencies $f_1 - f_2$ and $f_2 - f_3$ present at each receiving antenna. Said velocity information is subsequently coupled to a computer which determines therefrom the polar coordinates of said receiver with respect to said transmitter and their rate of change.

3,573,830
LOOP ANTENNA
 Motomu Tadama, Kanagawa-ken; Kosuke Akiba, Tokyo; Toshitada Doi, Kanagawa-ken; Masashi Mikkaichi; Tetsuya Mori, and Risaburo Sato, Miyagi-ken, Japan, assignors to Sony Corporation, Tokyo, Japan
 Filed Feb. 7, 1969, Ser. No. 797,513
 Claims priority, application Japan, Feb. 8, 1968, 43/7861
 Int. Cl. H01q 7/00
 U.S. Cl. 343-741

1 Claim

In a directional loop antenna, particularly for television receivers, in which a pair of arcuate conductive members are mounted in opposed relation with their concave sides facing

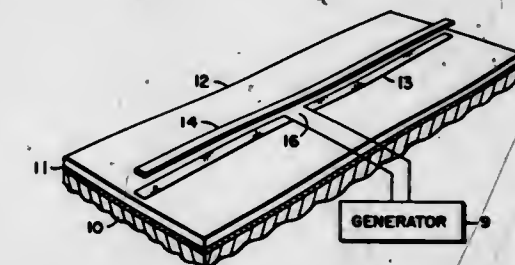
each other to define a loop, a dummy load is connected between two of the adjacent ends of the conductive members and output terminals are connected to the opposite adjacent



ends, the conductive members are formed with relatively narrow end portions and relatively wide middle portions to increase the frequency band width and gain of the antenna.

3,573,831
PROXIMITY FUZE MICROSTRIP ANTENNA
 Gary L. Forbes, Holt, Mich., assignor to Avco Corporation, Richmond, Ind.
 Filed Apr. 28, 1969, Ser. No. 819,884
 Int. Cl. H01q 1/28
 U.S. Cl. 343-705

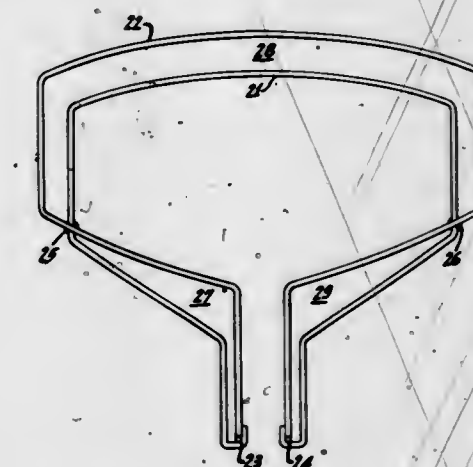
4 Claims



An energy radiator for use in small projectiles is disclosed. Effective wave propagation is achieved from the radiator by propagating energy along two conductors, one of which is placed above the other as a parasitical element in which the voltage node is displaced approximately 0° with respect to the voltage node of the first conductor.

3,573,832
UHF TELEVISION ANTENNA
 John D. Callaghan, Cherry Hill, N.J., assignor to RCA Corporation
 Continuation of application Ser. No. 577,640, Sept. 7, 1966, now abandoned. This application Sept. 25, 1969, Ser. No. 861,200
 Int. Cl. H01q 1/12
 U.S. Cl. 343-742

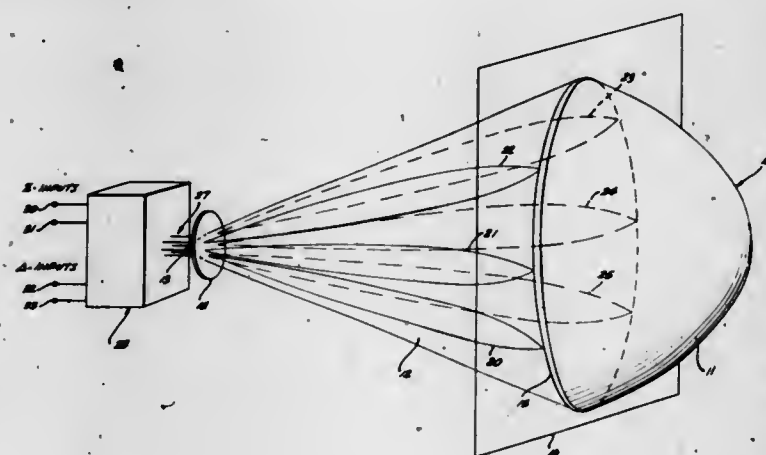
5 Claims



A UHF television band antenna includes two or more conductive loops, at least one of which is broken and is provided with terminals adapted for connection to a television receiver. One of the loops has a perimeter equal to one wavelength at a frequency within the UHF band. The

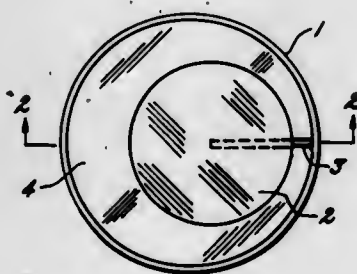
loops are positioned and interconnected in such a fashion that no subloop, formed by unbroken lengths of wires defining two or more of said loops, has a perimeter equal to the wavelength corresponding to any frequency within the UHF band.

3,573,833
BROADBAND DIELECTRIC LENS ANTENNA FED BY MULTICONDUCTOR QUASI-TEM LINES
James S. Ajioka, Fullerton, and Raymond H. Du Hamel, Los Altos Hills, Calif., assignors to Hughes Aircraft Company, Culver City, Calif.
Filed July 22, 1969, Ser. No. 843,554
Int. Cl. H01q 19/06
U.S. Cl. 343-753 10 Claims



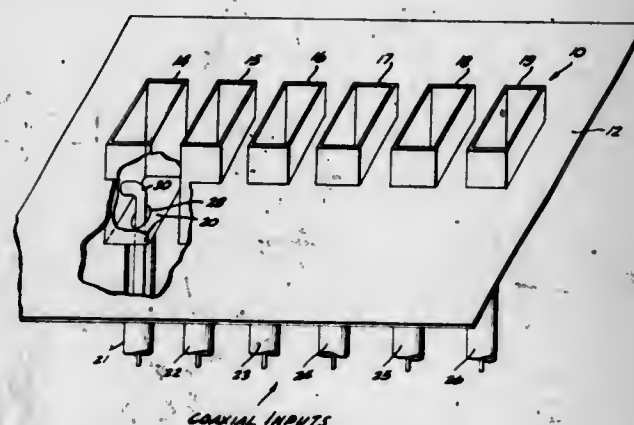
The apparatus of the present invention provides a feed system utilizing a dielectric lens that is conical on one side and a truncated ellipsoid on the other, with the vertex of the cone coinciding with the focal point of the ellipsoid that is farthest from the convex side thereof. No less than two angular or conical conductors emanating from a multiple-port feed network are disposed longitudinally along the conical portion of the dielectric lens to the point of maximum lens diameter, whereat the conductors are connected together. To achieve monopulse capability and dual polarization, a multiconductor TEM line having no less than five conductors with the proper relative phasing therebetween is used to feed the lens. Proper relative phasing between lines is achieved with a broadband hybrid network.

3,573,834
CRESCENT SHAPED CAVITY BACKED SLOT ANTENNA
William J. McCabe, Tewksbury, and Chester J. Hunt, Melrose, Mass.
Filed Oct. 31, 1968, Ser. No. 772,300
Int. Cl. H01q 13/12
U.S. Cl. 343-769 10 Claims



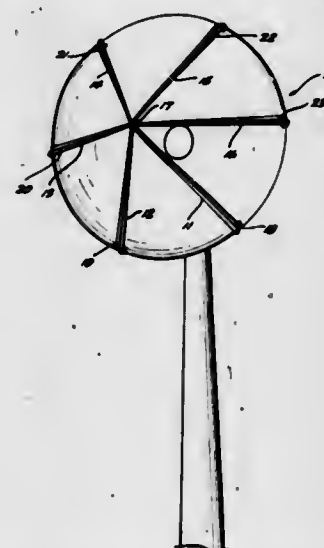
The invention comprehends a cavity backed slot antenna having improved RF bandwidth characteristics. The cavity is cylindrical and has a series coaxial transmission line feed which provides radially symmetrical TEM mode cavity field excitation. The slot is substantially crescent shaped. A radially disposed vane member within the cavity is used to generate an internal E field.

3,573,835
IMPEDANCE MATCHED OPEN-ENDED WAVEGUIDE ARRAY
Louis Stark, Fullerton; Raymond Tang, Anaheim, and Nam San Wong, La Habra, Calif., assignors to Hughes Aircraft Company, Culver City, Calif.
Filed Jan. 14, 1969, Ser. No. 790,959
Int. Cl. H01q 13/00
U.S. Cl. 343-776 2 Claims



The apparatus of the present invention provides an open-ended waveguide array wherein the impedance of the array elements are efficiently matched over a wide beam scan angle at reasonable cost. This impedance matching is achieved by employing open-ended waveguide radiators which are capable of supporting multiple waveguide modes for the respective radiating elements. In the operation of an illustrative embodiment of the array, the excitation of the two lowest order modes of appropriate phase in each of the open-ended waveguide radiating elements produces well-matched elements over a wide beam scan angle.

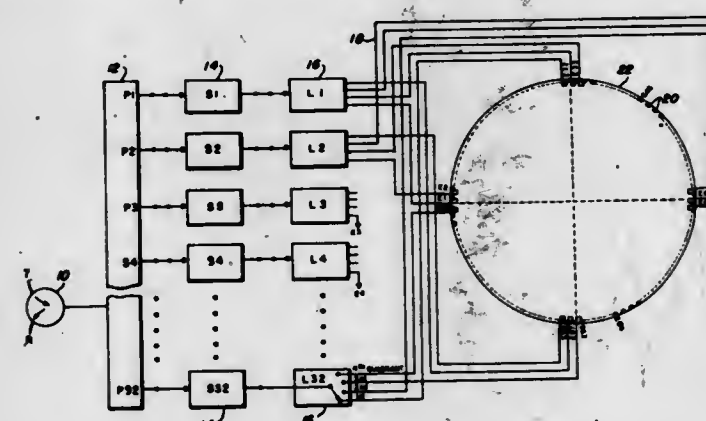
3,573,836
ANTENNA WITH CONICAL TRANSMISSION LINE FEED
James S. Ajioka, Fullerton, and Raymond H. Du Hamel, Los Altos Hills, Calif., assignors to Hughes Aircraft Company, Culver City, Calif.
Filed July 22, 1969, Ser. No. 843,553
Int. Cl. H01q 13/00, 19/12
U.S. Cl. 343-777 12 Claims



The apparatus of the present invention provides an antenna with a dual circularly polarized monopulse feed system which employs a conical or angular transmission line to guide a transverse electromagnetic spherical wave to a reflector. For an n element conical transmission line feed where n is a positive integer no less than three, normal modes with phase progressions or delays of $360^\circ/n$ from one element to the next are used to illuminate the reflector for rotationally symmetric sum patterns with either sense of circular polarization. Similarly, for an n element conical

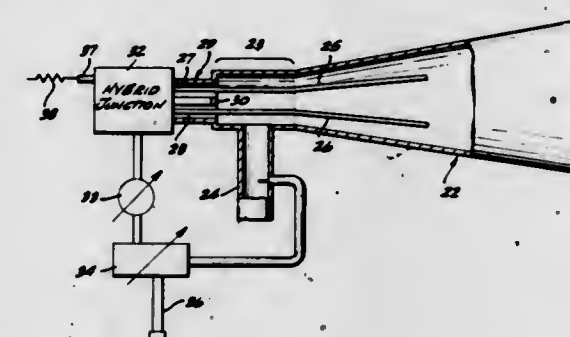
transmission line feed where n is a positive integer no less than five, normal modes with phase progressions or delays of $720^\circ/n$ from one element to the next are used to illuminate the reflector for rotationally symmetric difference patterns with either sense of circular polarization.

3,573,837
VECTOR TRANSFER FEED SYSTEM FOR A CIRCULAR ARRAY ANTENNA
John Reindel, San Diego, Calif., assignor to the United States of America as represented by the Secretary of the Navy
Filed June 30, 1969, Ser. No. 838,730
Int. Cl. H01q 3/26
U.S. Cl. 343-778 2 Claims



A feed system for a circular array antenna which is steerable through 360° in a predetermined number of discrete steps is disclosed. A beam forming network consisting of diode phase and amplitude switches is used to select the phase and amplitude (vector) of the energy distribution which is applied to the active array radiating elements. The radiated beam is scanned by transferring the vectors to a new set of active array elements selected by multithrow switches. The scanning technique is called a vector transfer.

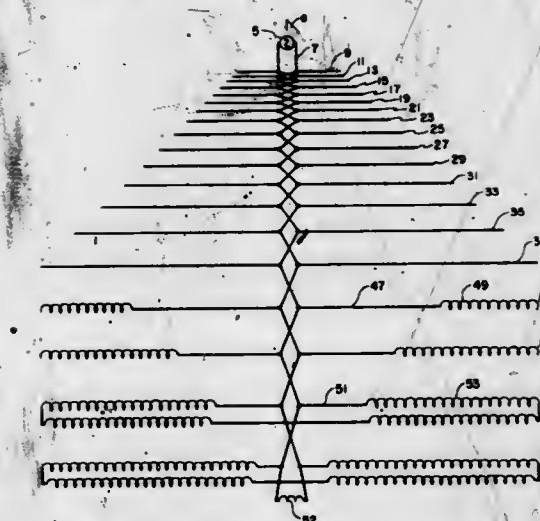
3,573,838
BROADBAND MULTIMODE HORN ANTENNA
James S. Ajioka, Fullerton, Calif., assignor to Hughes Aircraft Company, Culver City, Calif.
Filed Oct. 28, 1968, Ser. No. 771,178
Int. Cl. H01q 13/00
U.S. Cl. 343-783 11 Claims



The apparatus of the present invention provides a horn antenna capable of generating a pattern with rotational symmetry and polarization purity over a broadband of frequencies with comparatively low side lobes. In achieving this operation, a first mode which propagates as a "slow wave" is launched through a first portion of the horn and is converted to a second mode which propagates as a "fast wave" through the remaining portion. At the aperture of the horn, the resulting wave combines with a "medium wave" which normally propagates along the entire length of the horn, to achieve the desired aperture distribution. Since the slow wave and the fast wave compensate each other for

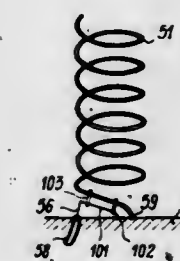
frequency changes, the overall desired aperture distribution can be sustained over a broad range of frequencies.

3,573,839
FORESHORTENED LOG-PERIODIC ANTENNA EMPLOYING INDUCTIVELY LOADED AND FOLDED DIPOLES
James C. Parker, Jr., Northville, Mich.
Filed Apr. 24, 1969, Ser. No. 819,065
Int. Cl. H01q 11/10
U.S. Cl. 343-792.5 6 Claims



Some of the lower frequency elements of this planar dipole log periodic antenna are inductively loaded to reduce the size thereof and others of said lower frequency elements are both loaded and folded, and in addition the dipoles are provided with a mounting and supporting boom which also functions as a balanced low impedance transmission line.

3,573,840
SMALL BULK HELICALLY WOUND ANTENNAE AND METHOD FOR MAKING SAME
Roger L. Gouillou, Dravell; Guy F. Ringenbach, Villeneuve-le-Roy, and Jacques H. Delomini, Epinay-sur-Seine, France, assignors to Office National D'Etudes Et De Recherches Aerospatiales, Chatillon-Sous-Bagneux, France
Filed Dec. 9, 1968, Ser. No. 782,337
Claims priority, application France, Dec. 15, 1967, Feb. 26, 1968, 132,155;141,294
Int. Cl. H01q 1/36
U.S. Cl. 343-895 9 Claims



Small bulk cylindrical or conical antennae made of a helically wound conductor with a free end and a grounded end. The coupling to a power supply or a load circuit is effected along a short length of said conductor near to and terminating on said ground plane, either by direct shunt coupling or by inductive coupling. The grounded end can be provided with a capacitive load. The antennae can be manufactured by sticking a metal strip to a dielectric sheet and rolling the latter to the desired shape, or by printing circuit technique and subsequent winding to said shape, in which they may be kept by clamping, glueing or any other method.

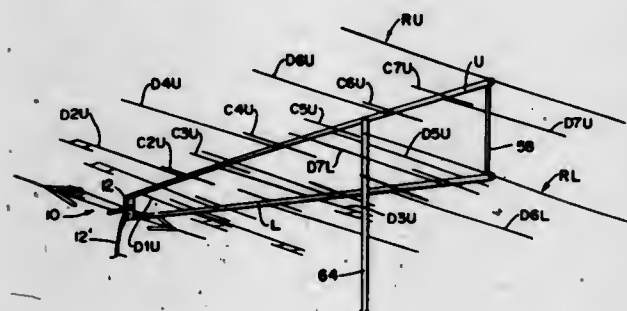
3,573,841 TELEVISION RECEIVING ANTENNA

Harry Greenberg, Kerhonkson, N.Y., assignor to Avnet, Inc., New York, N.Y.

Filed May 27, 1968, Ser. No. 732,427
Int. Cl. H01q 21/12

U.S. Cl. 343-802

17 Claims



A dual band, front fed television receiving antenna comprises upper and lower crossarms forming an acute angle in a vertical plane, and supporting a plurality of dipoles of graduated length decreasing toward the front of the array. Each dipole has a pair of arms with one arm of each dipole being connected to one crossarm and the other arm connected to the other crossarm, the arms of each dipole extending horizontally in opposite directions and transversely from their associated crossarms. An outboard, close-spaced parasitic element is associated with each arm of those dipoles which have an effective length of approximately one full wavelength at a frequency in the high VHF band. Certain of the dipoles have a centrally located close-spaced parasitic element associated with each of their two dipole arms. UHF elements may be similarly connected to the respective crossarms with at least some of the UHF elements physically located between the two frontmost VHF dipoles.

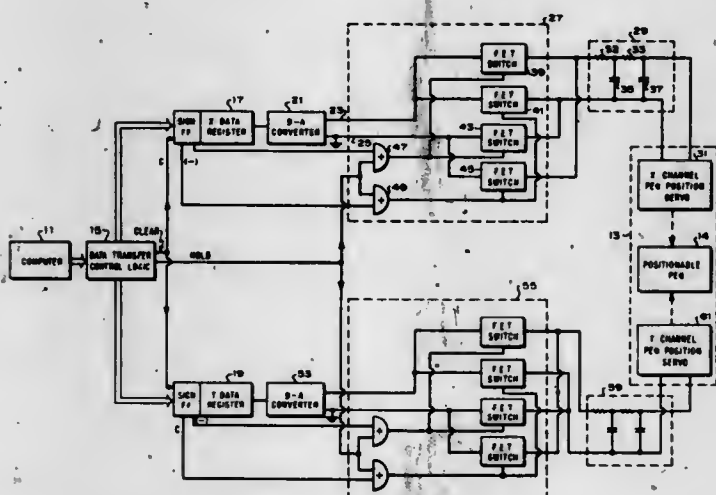
3,573,842

CONTROL SYSTEM FOR X-Y GRAPHICAL RECORDER
Robert W. Colpitts, East Palo Alto, Calif., assignor to Hewlett-Packard Company, Palo Alto, Calif.

Filed Feb. 24, 1969, Ser. No. 801,300
Int. Cl. G01d 9/40

U.S. Cl. 346-29

7 Claims



An X-Y graphical recorder has a pen which is positionable by a two-channel control system responsive to X and Y digital data from a computer. Each channel of the control system includes the series combination of a storage register, a digital-to-analogue converter, gated switching means, a filter and memory-hold circuit, and a servomechanism for driving the positionable pen. The gated switching means of the two channels are operated simultaneously to apply analogue pen control signals of either normal or reverse polarity to the corresponding filter and memory-hold circuits. The pen is moved in X and Y directions simultaneously, at the same

percentage displacement rate to draw a straight-line segment between two points on a graph.

3,573,843

DATA AND TIME RECORDER

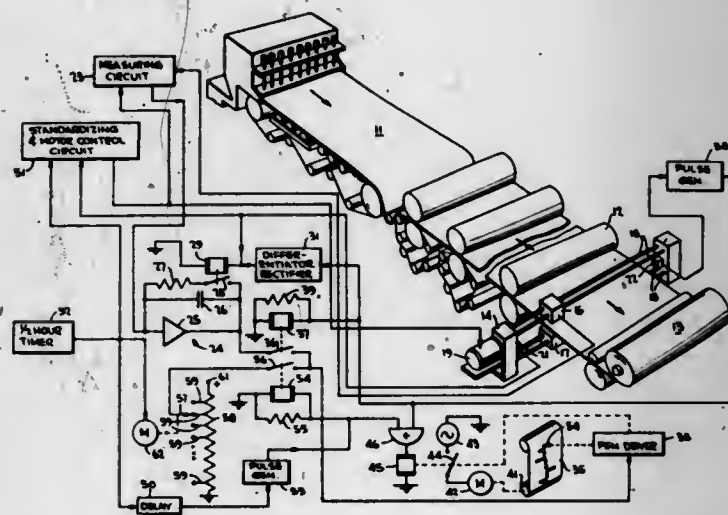
Bill W. Solley, Columbus, Ohio, assignor to Industrial Nucleonics Corporation

Filed Feb. 16, 1968, Ser. No. 706,103

Int. Cl. G01d 9/34

U.S. Cl. 346-34

11 Claims



Disclosed is a strip chart recorder having a pen driven by amounts proportional to measured data and analogue time indicating signals on a time division multiplex basis. The chart is advanced as each signal is fed to the pen. The time indicating signals are fed to the pen at will or periodically. In the latter case, the time-indicating signals are generated when a gauge deriving the measured data is being standardized.

3,573,844

MAGNETIC RECORDING HEAD WITH A VARIABLE RELUCTANCE PATH

Gerald Marvin Gardner, Stansted, Essex, England, assignor to International Standard Electric Corporation, New York, N.Y.

Filed June 26, 1968, Ser. No. 740,138

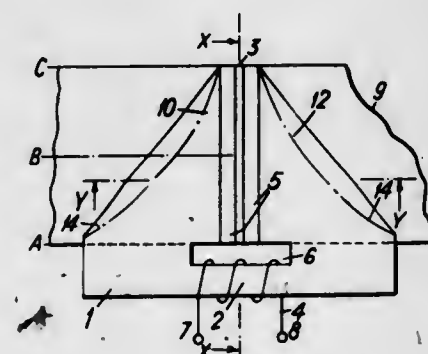
Claims priority, application Great Britain, July 14, 1967,

32,457/67

Int. Cl. G01d 15/12; G11b 5/22, 5/08

U.S. Cl. 346-74

7 Claims



A magnetic recording head having a single magnetic recording gap extending across the width of a recording medium which moves transversely thereto. A signal to be recorded, represented by pulses of alternating polarity and sequentially decreasing magnitudes, is applied to a signal winding which develops a magnetic flux. This flux follows a reluctance path which reduces from a maximum at one end of the head to a minimum at the other end of the head due to the combination of the placement of said winding at one end of said head, and the shape of said head, thereby causing successive portions in time of the signal to be recorded

transversely in spatial sequence across the width of said medium by means of a radiation beam, modulated and deflected so as to scan a print area and to sensitize elementary spots serially.

3,573,845

ACOUSTIC IMAGE REPRODUCTION SYSTEM USING A PIEZOELECTRIC PRINTER AND ELECTROGASDYNAMICS

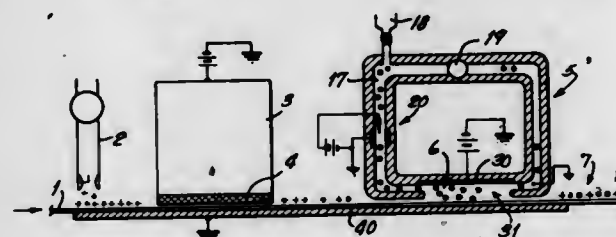
Meredith C. Gourline, West Orange, N.J., assignor to Gourline Systems, Inc., Essex County, N.J.

Filed Feb. 27, 1969, Ser. No. 803,021

Int. Cl. G01d 15/06; H01v 7/00; G11b 9/00

U.S. Cl. 346-74

10 Claims



An apparatus and method for printing an image of a pattern of sound waves on a dielectric sheet, such as paper or the like, comprising the use of a space charge cloud of ionized ink from an electrogasdynamic generator to develop an electrostatic charge image of the sound pattern which has been formed on the dielectric sheet using an acoustic image converter plate. By virtue of the high charge on the ink, a high quality image is developed on the sheet even though the sound wave patterns resulting from ultrasonic scanning of a test object or from the energizing of an acoustical transducer may be comparatively weak.

3,573,846

PLURAL PATH INK JET WRITING ARRANGEMENT

Enzo Ascoli, Lausanne, Vaud, Switzerland, assignor to Paillard S.A., Sainte-Croix, Vaud, Switzerland

Filed Aug. 19, 1969, Ser. No. 851,363

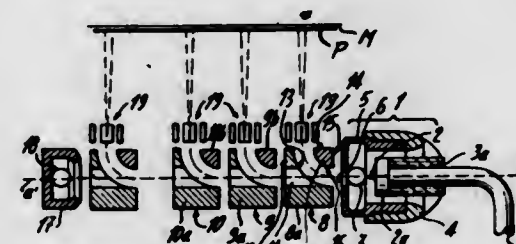
Claims priority, application Switzerland, Sept. 4, 1968,

13295/68

Int. Cl. G01d 15/18

U.S. Cl. 346-75

7 Claims



A line-writing arrangement wherein the electrostatically deflected jet or jets of ink including a pair of auxiliary electrodes inserted between each jet and the cooperating deflecting electrodes so as to form two different paths to be followed selectively by the jet before it reaches said deflecting electrodes.

3,573,847

CHARACTER RECORDER

Giorgio Sacerdoti, Milan, Italy, assignor to Olivetti-General Electric S.p.A., Caluso (Torino), Italy

Continuation of application Ser. No. 501,950, Oct. 22, 1965, now abandoned. This application Aug. 22, 1969, Ser. No.

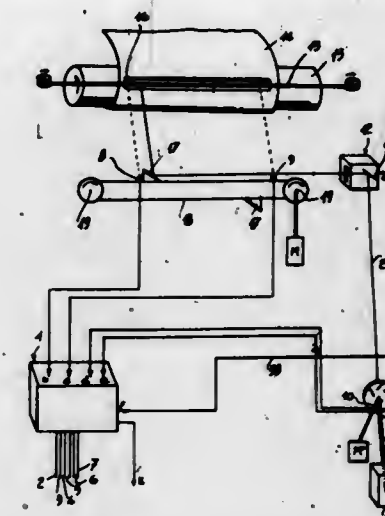
852,987

Int. Cl. G06k 15/02

U.S. Cl. 346-76

6 Claims

A recording apparatus is shown in which serial printing of characters is achieved on a radiation sensitive print medium,



on the print medium, each character being formed by the combination of said elementary spots.

3,573,848

TIME RECORDER

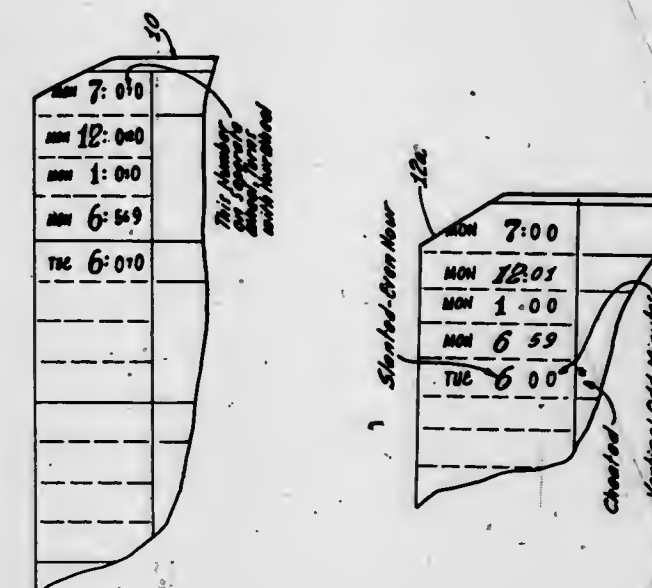
Wardell L. Ward, P.O. Box 75982, Los Angeles, Calif.

Original application Dec. 18, 1967, Ser. No. 691,379, now Patent No. 3,484,790, dated Dec. 16, 1969. Divided and this application Oct. 22, 1969, Ser. No. 871,235

Int. Cl. G07c 1/06

U.S. Cl. 346-82

2 Claims



Existing industrial time clocks are capable of being misused by employing screening or cheater cards which are placed against, and inserted with, the usual time clock card, so as to blank out the printing of minutes with one insertion of the card, and the hour, on a second insertion. By such manipulation, employees can record on the card almost two extra hours of time which the time card will then indicate was worked by the employee. Such time clock cheating is prevented by the present invention in which special means are provided for use with the minute printing wheel to indicate the true hour when the minutes are printed on the card. Among the possible means shown are an additional hour wheel printing closely in conjunction with the minute wheel, either in plain figures or in code; an alternately colored ribbon for printing different consecutive hours; different character printing for different consecutive hours; different minute wheel disposition for different consecutive hours; and different card dispositions in relation to the printing wheels for different consecutive hours.

3,573,849

PATTERN GENERATING APPARATUS

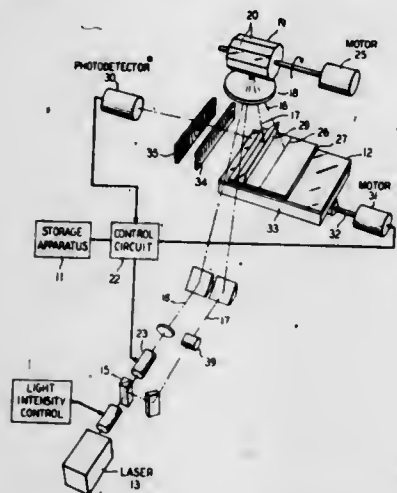
Donald R. Herriot, Morris Township, Morris County; Kenneth M. Poole, Bernardsville, and Alfred Zacharias, Plainfield, N.J., assignors to Bell Telephone Laboratories, Incorporated, Murray Hill, Berkeley Heights, N.J.

Filed Feb. 4, 1969, Ser. No. 796,456

Int. Cl. G01d 15/14

U.S. Cl. 346-108

11 Claims



Stored data representative of a pattern or image to be reproduced modulates a writing light beam that is reflected by a rotating mirror structure to scan a photosensitive medium. A coding beam scans a code plate in synchronism with the writing beam to generate a code signal used for controlling modulation of the writing beam. A scanning lens having a nonuniform focal length is used to make the linear scan velocity of the writing beam more uniform. An interferometer may be used to drive a refracting plate in the writing beam path to compensate for errors in the movement of the photosensitive medium.

3,573,850

MULTIPLE SOCKET ASSEMBLY

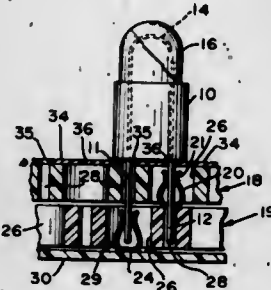
Kenneth Wessel, White Plains, N.Y., assignor to Sealectro Corporation, Mamaroneck, N.Y.

Filed Oct. 22, 1969, Ser. No. 868,314

Int. Cl. H01r 23/02, 13/12

U.S. Cl. 339-157

6 Claims



A socket strip for miniature lamps with conductive pins extending downwardly therefrom. It comprises a plurality of sockets for the pins with flat soldering contacts extending from the bases of the sockets. The sockets are alternately mounted on two levels formed with superimposed decks, each having alternately arranged larger and smaller holes. The larger holes receive a socket on one deck, and the other hole receives the second pin from said lamp which passes into a socket positioned in the second deck.

3,573,851

MEMORY BUFFER FOR VECTOR STREAMING

William J. Watson; William D. Kastner, and Thomas E. Cooper, Richardson, Tex., assignors to Texas Instruments, Incorporated, Dallas, Tex.

Filed July 11, 1968, Ser. No. 744,190

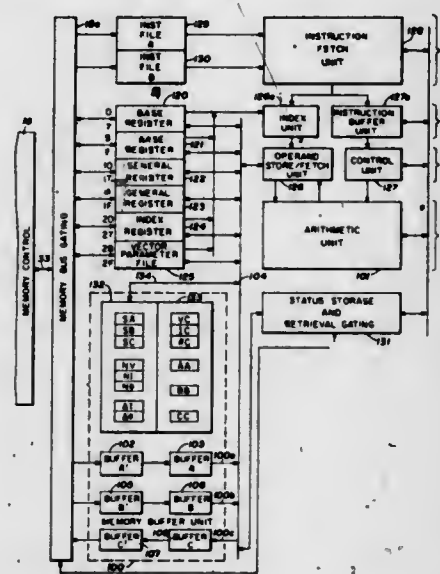
Int. Cl. G06f 9/00

U.S. Cl. 340-172.5

10 Claims

A data processing system is provided with a central processing unit with an arithmetic unit which is accessible

from memory over two buffered channels and accessible to memory over one buffered channel. The central processing unit is provided with a program addressable register file for storage of machine language vector parameters. A common set of parameter and working storage registers is provided for



control of the buffered input and output channels and for control of the operation of the central processing unit. A control means is responsive to a program instruction for loading machine language vector parameters from the register file into the storage registers for the ordered handling of vector data by the central processing unit.

3,573,852

VARIABLE TIME SLOT ASSIGNMENT OF VIRTUAL PROCESSORS

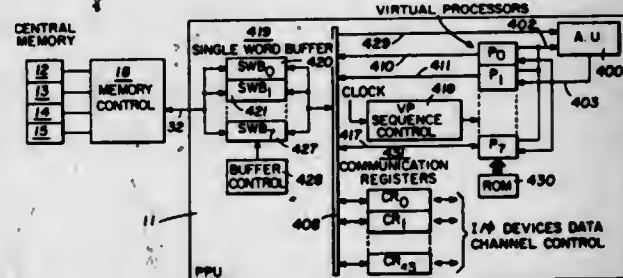
William J. Watson, and Edwin H. Husband, Richardson, Tex., assignors to Texas Instruments Incorporated, Dallas, Tex.

Filed Aug. 30, 1968, Ser. No. 756,690

Int. Cl. G06f 7/38, 9/18

U.S. Cl. 340-172.5

8 Claims



A peripheral processor supporting a central processor is provided with a plurality of virtual processors which utilize one arithmetic unit. A sequencer operating at clock rate assigns to the virtual processors time slots for utilization of the arithmetic unit. An addressable register stores codes representative of the virtual processors to permit either equal or preferential assignment of the time slots between the virtual processors.

3,573,853

LOOK-AHEAD CONTROL FOR OPERATION OF PROGRAM LOOPS

William J. Watson, and Thomas E. Cooper, Richardson, Tex., assignors to Texas Instruments Incorporated, Dallas, Tex.

Filed Dec. 4, 1968, Ser. No. 780,980

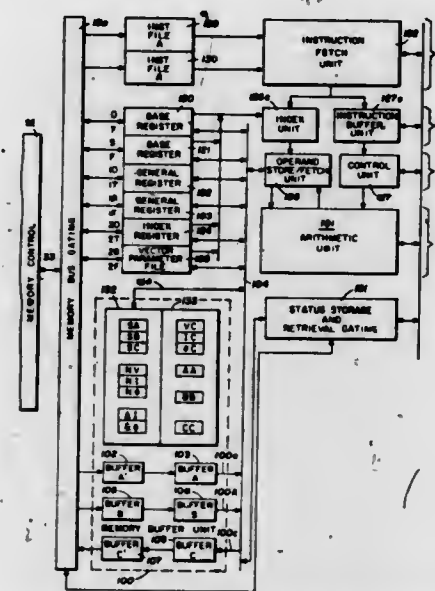
Int. Cl. G06f 9/06

U.S. Cl. 340-172.5

5 Claims

A programmed computer look-ahead system is responsive to the presence in the instruction stream of a look-ahead instruction which is followed after a predetermined number of instructions by a conditional branch instruction. A decoder responds to the look-ahead instruction to establish

an index which is then changed an equal amount for each instruction processed. In response to a stored conditional branch instruction the operation returns to the instruction.



stream at the location of the stored look-ahead address when the index changes by an amount representative of the spacing along the instruction stream between the look-ahead instruction and conditional branch instruction.

3,573,854

LOOK-AHEAD CONTROL FOR OPERATION OF PROGRAM LOOPS

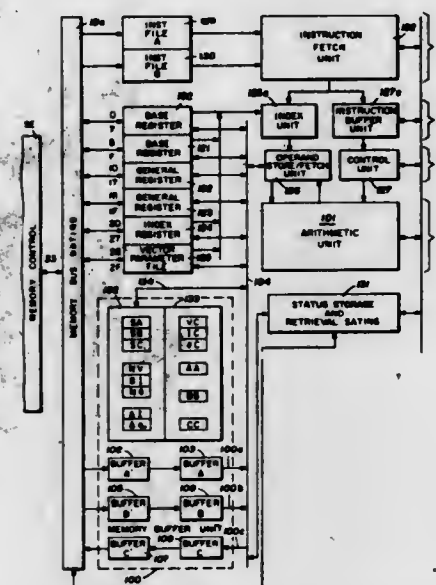
William J. Watson, and William D. Kastner, Richardson, Tex., assignors to Texas Instruments Incorporated, Dallas, Tex.

Filed Dec. 4, 1968, Ser. No. 781,071

Int. Cl. G06f 9/12

U.S. Cl. 340-172.5

7 Claims



A look-ahead system for a digital computer is disclosed. This digital computer has programmed instructions stored in and retrievable from a memory. Instruction streams from the memory are passed serially through a plurality of instruction registers for processing the instructions. A preliminary decoder senses a look-ahead instruction in the instruction stream and a look-ahead counter responds to the decoding of a look-ahead instruction in the preliminary decoder to establish an index in the look-ahead counter. The index in the look-ahead counter is decremented upon the appearance of each subsequent instruction in the instruction stream at the preliminary decoder. There is a branch decoder which is operable in the instruction processing registers following the preliminary decoder for sensing the conditional branch instruction in the instruction stream. A present address register indicates a present address of the instruction to be processed through the instruction processing registers. A third decoder responds to the contents of the present address

register to control the supply of instructions in series to the instruction registers. A branch register responds to predetermined conditions in the present address register and the index in the counter to establish in a look-ahead register an address in the memory for the look-ahead instruction in the instruction stream to control the repeat of the fetch of the look-ahead instruction from memory.

3,573,855

COMPUTER MEMORY PROTECTION

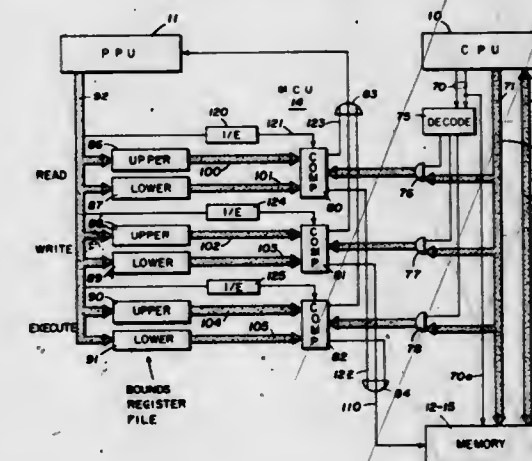
Harvey G. Cragon, Dallas, and William J. Watson, Richardson, Tex., assignors to Texas Instruments Incorporated, Dallas, Tex.

Filed Dec. 31, 1968, Ser. No. 788,166

Int. Cl. G06f 7/38

U.S. Cl. 340-172.5

8 Claims



A data processing system is provided with a central processing unit with an arithmetic unit which is accessible to and from memory over buffered channels. The system is provided with registers for storage of upper and lower memory bounds for data to be read, data to be written and instructions to be fetched for execution. A comparison means is responsive to a request from memory for comparing each memory request with the bounds stored in the register file. The request from memory is enabled if the bounds comparison is satisfied, means being provided to elect internal or external bounds comparison.

3,573,856

DISTRIBUTED PRIORITY OF ACCESS TO A COMPUTER UNIT

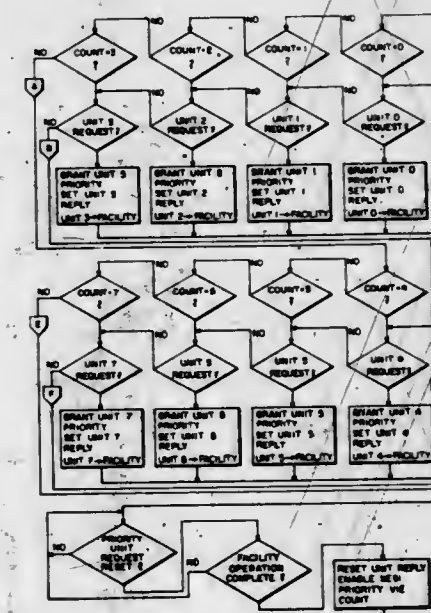
Dennis R. Best, and William J. Watson, Richardson, Tex., assignors to Texas Instruments Incorporated, Dallas, Tex.

Filed June 24, 1969, Ser. No. 836,071

Int. Cl. G06f 9/18

U.S. Cl. 340-172.5

8 Claims



Priority of access, as between a plurality of users, to a computer element such as a memory module is controlled by

establishing a fixed priority sequence and, in response to each completion of access to such module, shifting the starting point in said fixed priority sequence from one point to another in the sequence order.

ERRATA

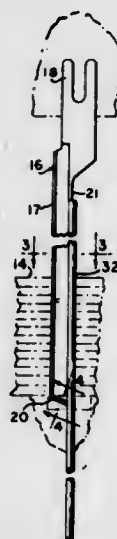
For Classes 29—95.1 thru 280—150 see:
Patent Nos. 3,573,857 thru 3,573,885

3,573,857

RECIPROCATING CUTTING BLADE

George W. Sederberg, Highland Heights, Ky., assignor to Cincinnati Milacron Inc., Cincinnati, Ohio
Original application May 8, 1967, Ser. No. 636,965, now abandoned. Divided and this application Apr. 4, 1969, Ser. No. 813,518

Int. Cl. B23p 15/42; B26b 13/00; B25b 13/12
U.S. Cl. 29—95.1 8 Claims



A material-cutting machine having a pair of endless bands, which are driven in unison, to advance material thereon longitudinally relative to a reciprocating cutting blade, which is supported by a fixed bridge of the cutting machine. The cutting blade is mounted for transverse movement through a transverse passage, which is formed between the endless bands supporting the material, and also is rotatable about a vertical axis. The movement of the endless bands and the transverse and rotational movements of the cutting blade are controlled by a numerical control apparatus. The cutting blade is formed with cutting surfaces on its leading edge and its lower edge, which connects the bottom ends of the leading and trailing edges.

ERRATUM

For Class 29—203 see:
Patent No. 3,573,625

3,573,858

PERMANENT PRESS PROCESS

Francis S. Moussalli, Charlotte, N.C., and Colin L. Browne, Charlotte, N.C., assignors to Celanese Corporation, New York, N.Y.

Filed July 25, 1969, Ser. No. 845,100
Int. Cl. D06f 71/00; D06c 29/00

U.S. Cl. 38—144 9 Claims

There is provided a novel process for the production of flat-drying, dimensionally stable, durable press garments with good abrasion resistance properties. In such process there is no requirement that the textile material from which said garments are made be impregnated with a fiber-setting reagent and precured or postcured in order to obtain a permanent press; rather, said press is obtained by the more economical and desirable method of heating the textile material to a temperature and for a time of from about 180° Fahrenheit for about 6 hours to about 440° Fahrenheit for about 1 second, cutting patterned pieces of fabric, sewing said pieces into a unitary shaped body, and pressing said shaped body for

from about 10 to about 90 seconds at a head temperature of from about 300° to about 350° Fahrenheit and an air supply pressure of from about 20 to about 100 pounds per square inch.

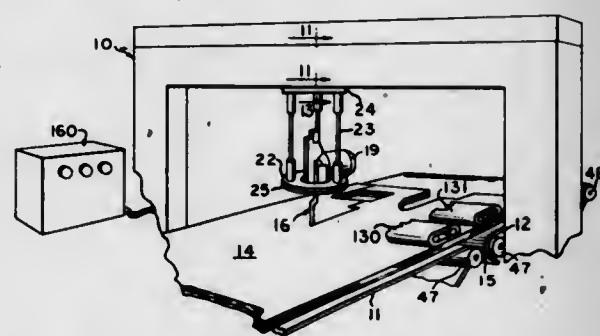
This process works especially well with fabrics comprised of from about 50 to about 95 percent of polyester. Since the fabrics used in this process contain substantially no fiber-setting reagent, the garments produced via the process of this invention possess excellent abrasion resistance properties.

3,573,859

METHOD FOR CUTTING SHARP ANGLES IN MATERIAL

George W. Sederberg, Highland Heights, Ky., assignor to Cincinnati Milacron Inc., Cincinnati, Ohio
Original application May 8, 1967, Ser. No. 636,965, now abandoned. Divided and this application Apr. 4, 1969, Ser. No. 813,519

Int. Cl. B26d 1/00 9 Claims
U.S. Cl. 83—34



A material cutting machine having a pair of endless bands, which are driven in unison, to advance material thereon longitudinally relative to a reciprocating cutting blade, which is supported by a fixed bridge of the cutting machine. The cutting blade is mounted for transverse movement through a transverse passage, which is formed between the endless bands supporting the material, and also is rotatable about a vertical axis. The movement of the endless bands and the transverse and rotational movements of the cutting blade are controlled by a numerical control apparatus. The cutting blade is formed with cutting surfaces on its leading edge and its lower edge, which connects the bottom ends of the leading and trailing edges.

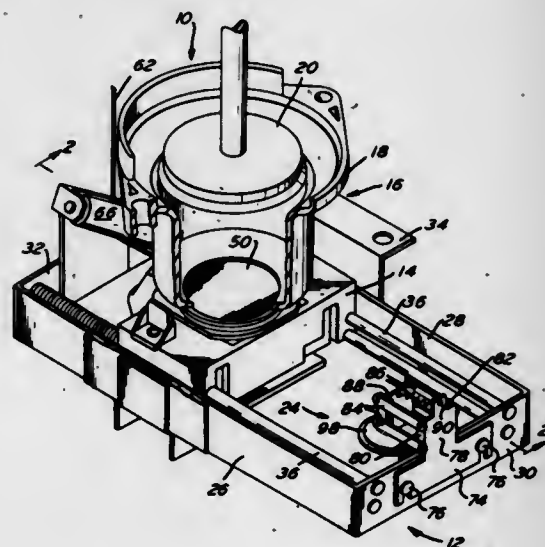
3,573,860

DEVICE FOR DISPOSING OF SPENT GROUNDS

Louis Bentzman, Levittown, Pa., assignor to The Pennstar Company, Warminster, Pa.

Filed May 5, 1969, Ser. No. 821,588
Int. Cl. A47j 31/00, 31/44, 31/60

U.S. Cl. 99—289 6 Claims



Apparatus is provided for disposing of spent ground or powdered material used in beverage brewing machines. The

apparatus includes an ejector member which is automatically activated by a carriage containing spent powdered beverage producing material to eject such spent material. The ground or powdered beverage producing material expands and forms a cakelike mass after a hot liquid has been passed therethrough. Accordingly, substantially the entire cake of powdered material is ejected by the ejector member. The ejector member is automatically returned to its inoperative position upon movement of the carriage to the brewing station.

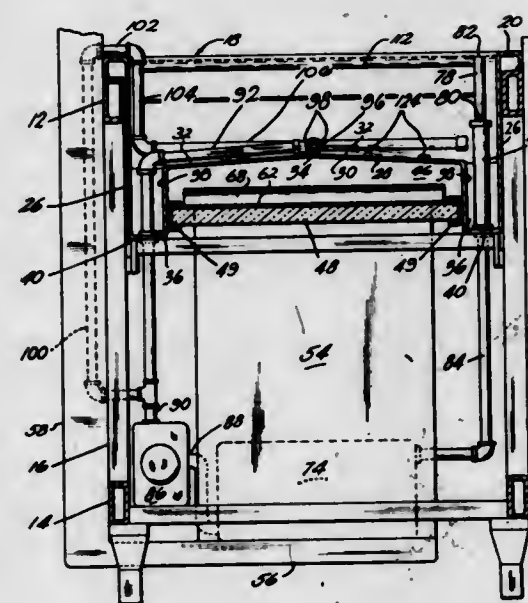
3,573,861

SELF-CLEANING FRYER APPARATUS

Dale S. Lecrone, Jackson, Mich., assignor to Dawn Donut Company, Inc., Jackson, Mich.

Filed Jan. 6, 1969, Ser. No. 789,165

Int. Cl. A47j 37/12 7 Claims
U.S. Cl. 99—404



A high production food fryer utilizing a heated liquid, such as shortening, wherein frying takes place within an elongated receptacle having a central heating portion and elongated recessed portions adjacent the lateral sides of the receptacle which define cold wells to receive crumbs and food particles dropping from a conveyor mechanism transporting food through the fryer. The frying liquid is continuously circulated and includes an output from the circulating means disposed adjacent the receptacle heating portion whereby the circulated frying liquid "flushes" the heating portion free of crumbs and food particles, washing the same into the cold wells of the receptacle.

ERRATUM

For Class 128—2.05 see:
Patent No. 3,573,394

3,573,862

VEHICLE WASHING APPARATUS

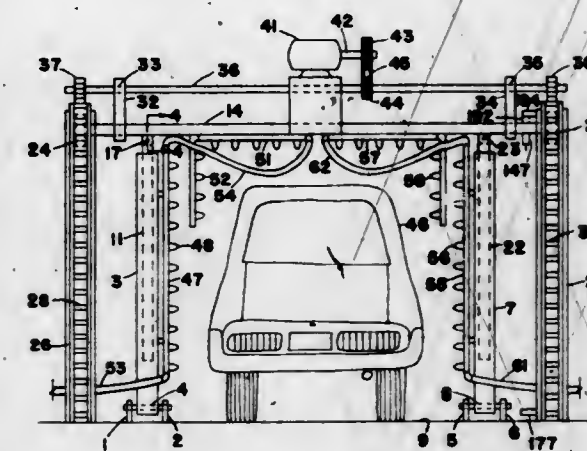
William B. Brown, Rte. 1, Granby, Mo.

Filed Nov. 1, 1968, Ser. No. 772,778

Int. Cl. B08b 3/04 3 Claims
U.S. Cl. 134—57

A pair of arcuate tracks mounted on a surface are provided. The sides and ends of the tracks define a vehicle washing position. The tracks substantially follow the top contour of the vehicle. A telescoping spray unit is operatively connected to the tracks and pivotally connected to the surface to provide a curtain of washing fluid substantially near and substantially normal to the vehicle surfaces. The spray unit substantially follows the top and side contours of the vehicle as the spray unit is moved back and forth over the vehicle. Hot wash water, cold rinse water and detergent supply means are provided. A timer operated, coin

responsive, control means automatically moves the spray unit back and forth over the vehicle and sequentially supplies hot



wash water-detergent mixture and cold rinse water to the spray unit.

3,573,863

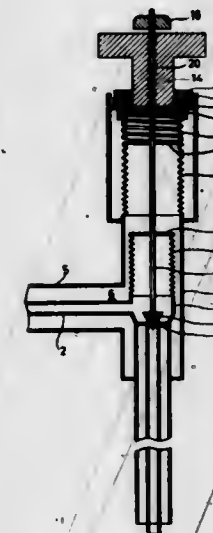
VACUUM-INSULATED VALVE

Bernardus Johannes Doors, and Petrus Simon Admiraal, Emmasingel, Eindhoven, Netherlands, assignors to U.S. Philips Corporation, New York, N.Y.

Filed Nov. 19, 1968, Ser. No. 777,081

Claims priority, application Netherlands, Nov. 30, 1967, 6716280

Int. Cl. F16k 27/00, 31/50 5 Claims
U.S. Cl. 137—375



A valve for controlling the flow of cryogenic fluids has an inner housing and an outer housing with a vacuum space between the two housings, a valve and seat within the inner housing, and a valve stem extending outward through and sealed to a first bellows of the inner housing, through the vacuum space, and through and sealed to a second bellows of the outer housing.

3,573,864

APPARATUS FOR MAKING MACHINE TOOL TEMPLATES

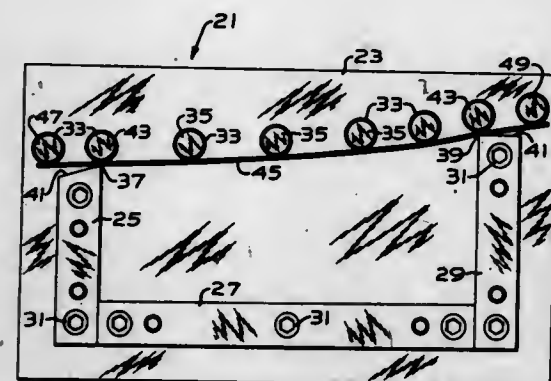
Samuel I. Caldwell, Brinfield; Robert C. Greer, Pekin, and Russell E. Sherer, Peoria, Ill., assignors to Caterpillar Tractor Co., Peoria, Ill.

Filed Nov. 6, 1968, Ser. No. 773,915

Int. Cl. B41b 11/60 5 Claims
U.S. Cl. 249—165

A method and apparatus for forming machine tool templates of plastic or ceramic materials by pouring such material, in a liquid state, into a compartment partially formed by a thin strip of sheet metal positioned by dowels

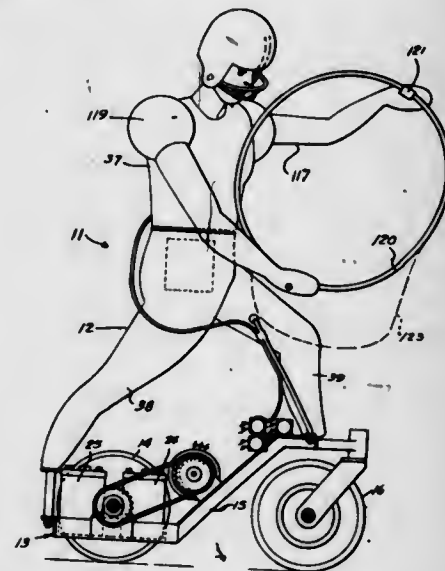
which are prepositioned in the bed of the mold. As the poured material solidifies, that portion adjacent the thin strip of metal is molded into the shape of the desired template surface.



3,573,867
MECHANICAL PASS RECEIVER
Audrey O. J. Mehrens, 1515 Avenue G, Rosenberg, Tex.
Filed July 1, 1969, Ser. No. 838,102
Int. Cl. A63h 11/00

U.S. Cl. 273-55

15 Claims

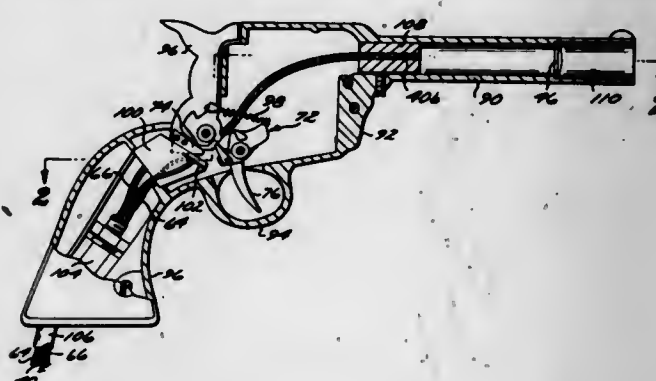


A football forward pass practice device consisting of a radio-controlled motor-driven carriage on which is mounted a simulated football player with a pivoted torso and pivoted arms between which is attached a bag for catching a football. The movements of the simulated torso and arms are radio-controlled so that the device can simulate the action of a running football player catching a football.

3,573,868
FIBER OPTICAL TARGET PRACTICE SYSTEM
Carlo Giannetti, 2918 W. Ball Road, Anaheim, Calif.
Filed Nov. 13, 1967, Ser. No. 682,286
Int. Cl. F41j 5/00

U.S. Cl. 273-101.1

9 Claims

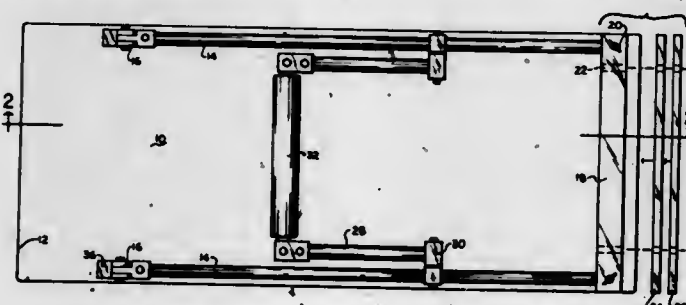


The specification of this application describes a target practice system which includes an optical arrangement by which light may be directed from a gun towards a target. The target includes a photosensitive means connected to initiate a scoring display system. The source of light for the gun is located at a point remote from the gun and light from the source is conveyed to the gun through a fiber optical conducting system. The source generates flashes of light in a gas tube which is fired by an electrical signal as an incident to alteration in light flux in an optical subsystem. The subsystem includes a second light source and fiber optic circuitry for conducting light from the second source through the gun and thence to light-sensitive circuitry in which the initiating pulse is generated. Means are provided within the gun for altering the light flow through the gun in response to actuation of the trigger mechanism. In the embodiment

3,573,866
WEIGHT LIFT TYPE EXERCISING DEVICE
Billy D. Madden, 508 West 4th, Odessa, Tex. 79760
Filed May 28, 1969, Ser. No. 828,478
Int. Cl. A63b 21/20, 23/04, 23/07

U.S. Cl. 272-81

5 Claims



Weights pivoted by two weight bars to a flat board. The weights are detachably connected to the end terminals of the

described in detail in this specification, the initiating pulse is generated by the secondary optical system upon the occasion of interruption of light flow through the secondary fiber optical circuit.

3,573,869
PLAYING DISC WITH TACKY SURFACE
John W. Duckett, Tiburon, Calif., assignor to American Molded Products, Ltd., Sausalito, Calif.
Filed Mar. 26, 1969, Ser. No. 810,505
Int. Cl. A63b 65/00

U.S. Cl. 273-106

2 Claims

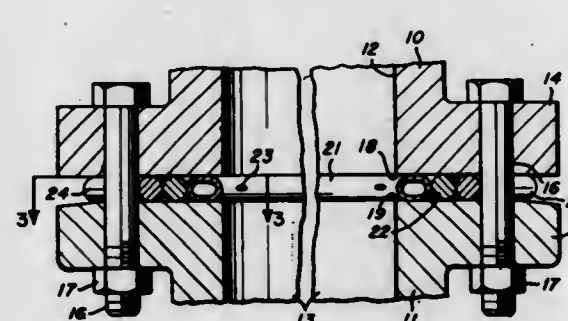


A packaged game comprises a plurality of flexible plastic discs having various sizes and colors. The game is played by having one player throw a disc to attempt to at least partially cover his opponent's disc in which event such player wins both discs. The game is terminated when one player wins all of the discs. Each disc has a tacky surface to better adhere to an opponent's disc, and flat top and bottom surfaces with a curved edge to provide an aerodynamic design for improved accuracy in flight.

3,573,870
RETAINING RING FOR SEALING ASSEMBLY
Robert L. Gastineau, and James E. Kalasky, Dayton, Ohio, assignors to United Aircraft Products, Inc., Dayton, Ohio
Filed Nov. 5, 1968, Ser. No. 773,402
Int. Cl. F16j 23/00

U.S. Cl. 277-11

2 Claims



A retainer ring for use in a sealing assembly further comprising an O-ring seal, the retainer ring having a solid wirelike construction and being formed with peripheral lugs in the same plane which interfits with fastener bolts for positioning of the sealing assembly.

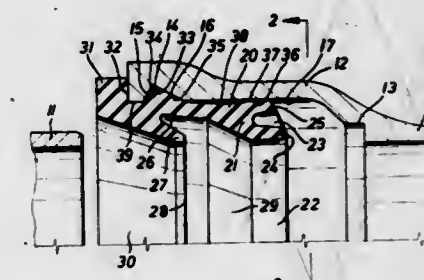
3,573,871
GASKET FOR BELL-TYPE PIPE JOINT
John A. Warner, Tyler, Tex., assignor to Tyler Pipe Industries, Inc., Tyler, Tex.
Filed Nov. 12, 1968, Ser. No. 774,782
Int. Cl. F16j 9/00; F16j 19/00

U.S. Cl. 277-168

5 Claims

A gasket preferably of rubber or other suitable elastomer for providing a seal and mechanical joint between the components of a telescoping-type joint such as customarily referred to as a bell-and-spigot-type joint or as a bell-type pipe joint. It is similar in some respects and in purpose to the gasket disclosed in U.S. Pat. No. 3,081,102, issued Mar. 12,

1963, for Gasket for Telescoping Joint, but has its exterior surface divided into two axially spaced sealing surfaces adapted to engage the interior of the bell, with a surface of slightly lesser diameter between them to partly relieve the friction between the gasket and the bell and make the gasket easier to insert into the bell. It also includes a sealing bead on the exterior sealing surface which is adapted to extend farthest into the bell in use and so positioned that when being pushed into the bell it will tend to rotate such sealing surface in a direction to partly relieve the pressure thereof against the interior of the bell and thus facilitate the insertion of the gasket into the bell, but will inhibit rotation in the

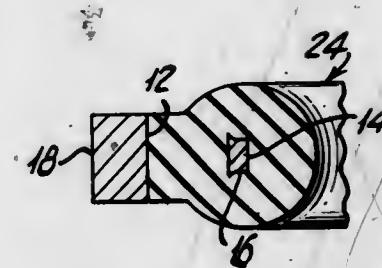


opposite direction to the original position and thereby strengthen certain of the seals. The reduction of the outer diameter of a part of the outer surface of the gasket facilitates such rotation of the sealing surface and relief of its pressure during insertion. The gasket also has a locking bead on the exterior sealing surface closest to the open end of the bell in use and this bead is joined to the portion of smaller exterior diameter by a tapered substantially conical portion which both makes it easier to start into the mouth of the bell during insertion and also makes it possible for this bead to lock into the locking grooves of various different shapes made by different pipe manufacturers without appreciable distortion.

3,573,872
SEALING WASHER
Harold A. Sannes, South Dartmouth, Mass., assignor to Acushnet Process Company
Filed July 3, 1968, Ser. No. 742,401
Int. Cl. F16j 15/00

U.S. Cl. 277-180

1 Claim



A composite sealing device is formed by molding a resilient ring on a coined portion of the inner diameter of a washer. A mechanical bond is formed by the ring material extending through holes at the outer periphery of the coined portion of the washer. The holes are of such diameter as to permit cold flow of metal into the holes from the coined portion of the washer without completely filling the void of the holes.

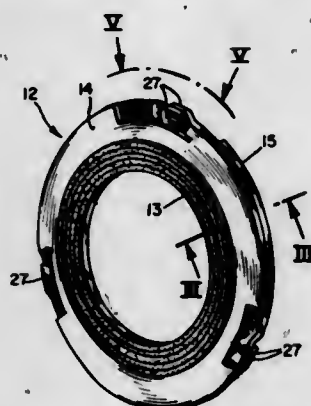
3,573,873
GUIDE AND COMPRESSION RING FOR GASKET INSERTS
Henry A. Pearson, 125 Cedarbrook Road, Ardmore, Pa. 19003
Filed Nov. 13, 1967, Ser. No. 682,207
Int. Cl. F16j 9/04

U.S. Cl. 277-203

24 Claims

A gasket assembly is provided, in which two annular rings are secured together with a replaceable gasket engaged therebetween, the gasket being of annular configuration and having an annular protruding peripheral portion at its radial

outermost edge of V-shape configuration, radial innermost edges of the rings being shaped together define a V-shaped configuration which, when the rings are clamped together, receive the annular V-shaped protrusion of the gasket therebetween, in clamped relation. Each ring is provided with axially bent tabs which are engageable with



corresponding tabs of an adjacent ring, the tabs of each pair of rings being complementally configured and being adapted for locking engagement upon pressing the rings together and providing relative rotation between the rings, preferably in a counterclockwise direction. The tabs may take on various forms and may be provided with interlocking means. An asbestos insert or the like may be provided between the two rings to provide compression of the ring assembly.

3,573,874 SEALING RINGS

Harold T. Hill, and Ronald Morris Caton, Sway, England, assignors to Wellworthy Limited, Lymington, England
Filed Apr. 8, 1968, Ser. No. 719,447

Claims priority, application Great Britain, Apr. 12, 1967, 16880/67

Int. Cl. F16j 15/00; F02f 11/00

U.S. Cl. 277-208

5 Claims



This specification discloses a sealing ring particularly a piston ring for an internal combustion engine, comprising a base ring, the outer periphery of which includes a generally plane cylindrical zone, and a coating of a wear resistant material provided on said zone. In the ring disclosed, the outer peripheral surface of the coating is provided with a plurality of axially spaced circumferentially extending lands.

3,573,875

SEAL FOR THE END FACES OF PARALLEL ROLLERS
John F. Zuczek, Oakdale Village, N.J., assignor to Herbert Grodnick, Metuchen, fractional part interest to each and Martin Grodnick, Maplewood, N.J., fractional part interest to each

Original application July 26, 1966, Ser. No. 567,955, now Patent No. 3,421,164. Divided and this application Sept. 18, 1968, Ser. No. 760,506

Int. Cl. F16j 15/54

U.S. Cl. 277-227

4 Claims

A seal for use in an apparatus in which a container is established by a plurality of rollers cooperating with one

another to establish an axially extending cavity and a relatively rigid plate member urged toward the corresponding ends of the rollers, the seal including a flexible bearing member of low friction material providing a sealing surface



3,573,876 ARRANGEMENT FOR RELEASABLY COUPLING A MEMBER TO A ROTATABLE BODY

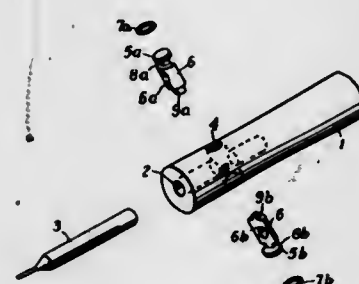
John William Powell, Little Acres Ballards Close, Lytchett Matravers, Poole Dorset, England

Filed Dec. 27, 1968, Ser. No. 787,512

Claims priority, application Great Britain, Jan. 11, 1968, 1712/68

Int. Cl. B23b 31/14

6 Claims



An arrangement for releasably coupling a member to a rotatable body includes two substantially identical locking pieces positioned within a transverse or diametrical bore of the rotatable body and connected together by O-rings such that they can move transversely of the body in opposite directions, with respect to each other. On rotation of the body, the locking pieces move apart under centrifugal force, their ends extending beyond the surface of the body to engage a member mounted on the body. Alternatively, the body is provided with an axial bore and the locking pieces have holes alignable with the bore to accommodate the shank of a tool. Rotation of the body causes the locking pieces to move apart, the edges of their holes gripping the shank of the tool.

3,573,877

CURB-CLIMBING ATTACHMENT FOR WHEEL CHAIRS
Burton H. Locke, 6545 Wilbur Ave, Spc. 84, Reseda, Calif. 91335

Filed May 19, 1969, Ser. No. 825,913

Int. Cl. B62b 5/02

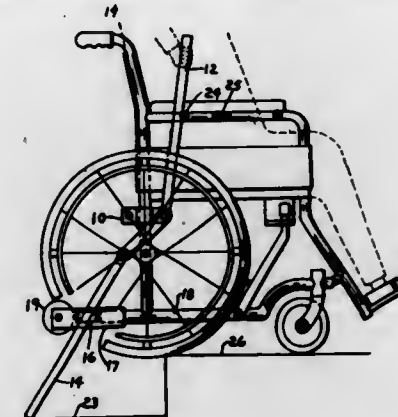
U.S. Cl. 280-5.32

2 Claims

Curb-Climbing Structure added to wheel chairs with lifting

means to be actuated by the occupant of the chair to raise

office buildings, hospitals and the like, which is so constructed that it can be conveniently conveyed up or down stairs, which normally assumes a substantially upright position with all of the contents thereof readily accessible,



the rear of the chair to a curb level after the front portion of the chair is placed on the curb.

3,573,878 REAR TIGHTENER FOR SAFETY SKI BINDINGS

Hannes Marker, Hauptstrasse 51-53, Garmisch-Partenkirchen, Germany

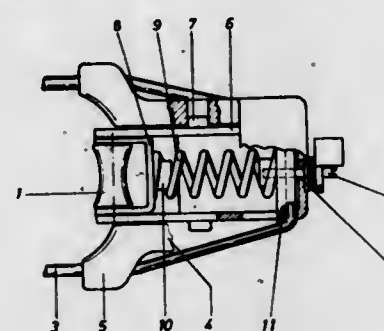
Filed Apr. 15, 1969, Ser. No. 816,289

Claims priority, application Germany, Apr. 19, 1968, P 17 03 225.6

Int. Cl. A63c 9/08

U.S. Cl. 280-11.35

7 Claims



A skiing boot pusher is disposed substantially between the legs of a U- or V-shaped retaining frame and is held on the same for pivotal movement about an axis which is transverse to the longitudinal axis of the ski and parallel to the tread of the ski. The free ends of the legs constitute guides for two tension elements, by which the rear tightener is held on the ski and which act on the pusher through the intermediary of at least one spring, which spring or springs produce the force for holding down the heel and the contact pressure by which the toe portion of the skiing boot is forced against a retaining device. A safety clutch is provided between the pusher and retaining frame and prevents a pivotal movement of the two parts relative to each other when the rear tightener is ready for use whereas it is disengaged to disconnect the two parts in response to an overload. The pusher extends rearwardly beyond the axis on which it is pivoted to the retaining frame and forms a two-armed lever having a forward arm which has a free end engageable with the heel of the boot. The other arm of the lever forms a guide which extends in the longitudinal direction of the lever and is in guiding engagement with a slider, to which the tension elements are connected. Each spring has one end bearing on the slider and another end bearing on a fixed part of the pusher. The clutch member carried by the pusher consists of a pin, which is mounted in the slider. The clutch member carried by the retaining frame consists of a locking member, which can be arbitrarily released.

3,573,879

CART FOR CLEANING IMPLEMENTS

Robert L. Bergkamp, and Helen Gerber Bergkamp, RR 2, Cheney, Kans. 67025

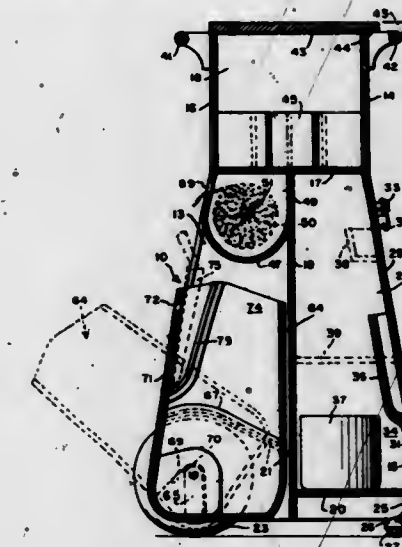
Filed June 6, 1969, Ser. No. 831,028

Int. Cl. B62b 1/12

U.S. Cl. 280-47.19

7 Claims

A cart for conveniently storing and transporting all of the implements and other items required for cleaning homes,



and which includes a receptacle which may be readily swung outwardly to an open position to receive trash and other refuse to be disposed of and which is capable of being readily removed from the cart for emptying the contents thereof.

3,573,880 FRONT WHEEL SUSPENSION FOR MOTOR VEHICLE

Yasuyuki Sakai, Tokyo, Japan, assignor to Nissan Jidosha Kabushiki Kaisha, Kanagawa-Ken, Japan

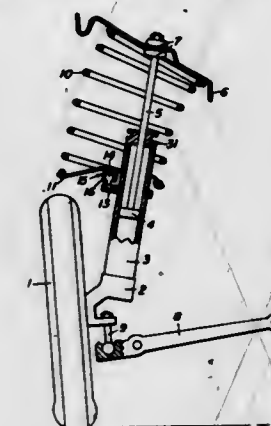
Filed Oct. 18, 1968, Ser. No. 768,639

Claims priority, application Japan, Oct. 28, 1967, 42/69260; 42/69261; 42/91270

Int. Cl. B60g 3/06, 15/06

U.S. Cl. 280-96.2

15 Claims



An improvement in a strut-type suspension for motor vehicle having a coil spring placed about a cylinder and piston assembly, wherein the lower end of the coil spring and a spring seat rotate eccentrically around the cylinder and piston assembly when the vehicle is steered. The coil spring is pressed onto the vehicle frame at the upper end thereof and on the spring seat at the lower end thereof, and the cylinder and piston rod assembly extends eccentrically through said coil spring. The spring is provided for supporting said coil spring. Said seat being mounted on said cylinder and piston for eccentric rotation about said assembly.

3,573,881

MOTOR VEHICLE SUSPENSION SYSTEMS

Charles Arthur Griffin, Barnet Green, England, assignor to Moulton Developments Limited, Bradford-on-Avon, England

Filed Mar. 7, 1969, Ser. No. 805,176

Claims priority, application Great Britain, Mar. 14, 1968, 12,450/68

Int. Cl. B60g 11/26

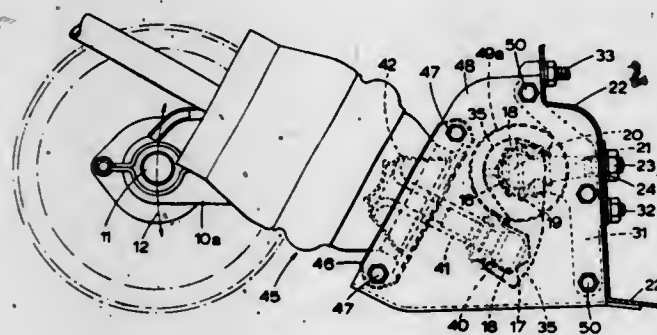
U.S. Cl. 280-96.2

4 Claims

This invention provides for an automotive vehicle a suspension arrangement with a trailing or semitrailing arm

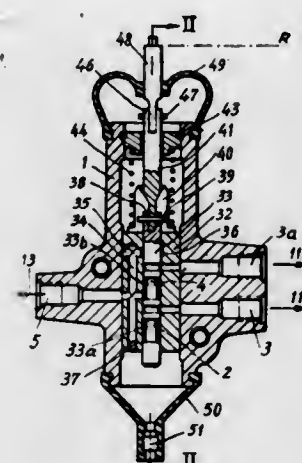
controlled by an hydraulic displacer unit, in which the trailing arm has at the outer end of its leading part, a flexible mounting allowing both pivotal and compliance movement to the arm, and at the inner end of the leading part, a depending

accumulators supplied with fluid under pressure by means of a distributor under pressure connected to said valve



crank arm acted on by an hydraulic displacer unit, and wherein said inner end is supported for both pivotal and compliance movement by a knuckle-type bearing situated so that its center lies in the vertical plane of thrust of the hydraulic displacer unit.

comprising a slide-valve piston and communicating with a fluid reservoir.



3,573,882

AXLE SUSPENSION, ESPECIALLY FOR THE REAR AXLE OF MOTOR VEHICLES

Friedrich H. Van Winsen, Kirchheim Teck, Germany, assignor to Daimler-Benz Aktiengesellschaft, Stuttgart-Unterturkheim, Germany

Filed Aug. 16, 1968, Ser. No. 753,284

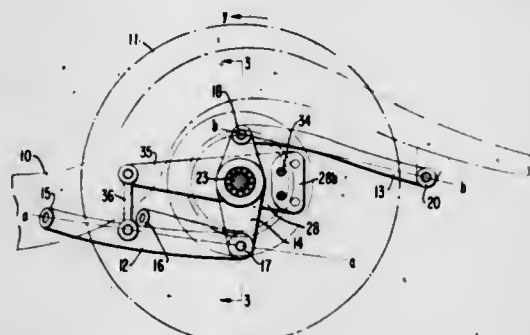
Claims priority, application Germany, Aug. 16, 1967,

D53,864

Int. Cl. B60g 3/00

U.S. Cl. 280-124

16 Claims



An axle suspension, especially for the rear axle of motor vehicles in which two oppositely directed longitudinal guide members are pivotally connected with the wheel carrier serving as coupler member while a brake stator is pivotally supported on the forwardly extending guide member; the free ends of the longitudinal guide members are so pivotally connected at the vehicle superstructure that the straight lines extending through their joint axes intersect to the rear of the rear axle, and preferably at a point located to the rear thereof by at least one wheel diameter.

3,573,883

DEVICES FOR THE VERTICAL ADJUSTMENT OF THE BODIES OF AUTOMOTIVE OR OTHER VEHICLES

Jean Georges Cadiou, Paris, France, assignor to Societe Anonyme Automobiles Citroen, Paris, France

Filed Nov. 27, 1968, Ser. No. 779,661

Claims priority, application France, Dec. 7, 1967, 131,384

Int. Cl. B60g 17/00

U.S. Cl. 280-124

3 Claims

An adjustment valve for a vertical adjustment device of automotive or other vehicles comprising at the front and rear ends suspensions provided with vertical correctors and

3,573,884 AIR BELLOWS SUSPENSION SYSTEM FOR VEHICLES

Hans Pollinger, Munich, Germany, assignor to Knorr-Bremse GmbH, Munich, Germany

Filed June 3, 1969, Ser. No. 829,973

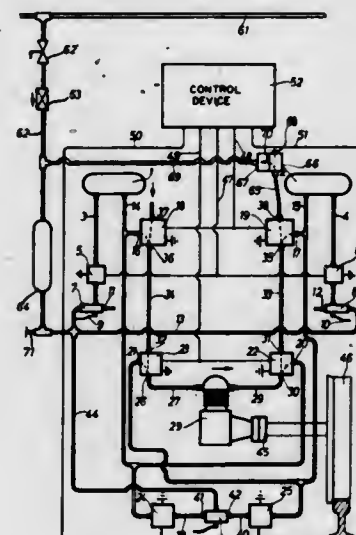
Claims priority, application Germany, June 7, 1968,

P 17 55 671.7-21

Int. Cl. B60g 21/00

U.S. Cl. 280-124

3 Claims



A vehicle having an air supply conduit therethrough has pneumatic bellows supporting both sides of the vehicle body. An axle-driven compressor pumps air from one bellows to another depending on the direction of the curved path the vehicle is travelling. An air supply reservoir is connected through a check valve to the air supply conduit and to the bellows. A pressure regulator is connected to the compressor discharge and to the air reservoir. A valve system connects the compressor intake and discharge to the bellows on both sides of the vehicle when the vehicle travels along a curved path to pump air from the bellows on the inside of a curve to the bellows on the outside of a curve. When the vehicle travels along a straight path air is pumped to the air supply reservoir whose maximum filled pressure is greater than the pressure in the air supply conduit. In response to the maximum filled pressure of the reservoir the pressure regulator will connect the compressor discharge to the atmosphere so that air is pumped to the atmosphere after the reservoir has been filled.

3,573,885 VEHICLE SAFETY APPARATUS FOR RESTRAINING OCCUPANT

Darrell S. Brawn, Livonia, and Bogdan Lisowsky, Detroit, Mich., assignors to Eaton Yale & Towne Inc., Cleveland, Ohio

Filed Dec. 18, 1968, Ser. No. 784,623

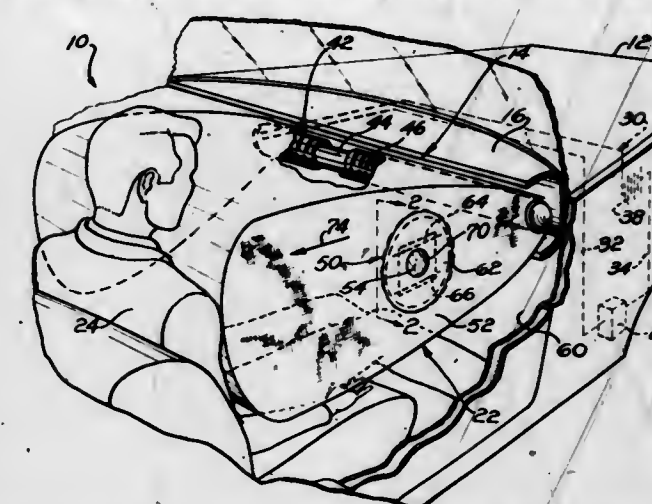
Int. Cl. B60r 21/08

U.S. Cl. 280-150

18 Claims

An improved safety apparatus for protecting an occupant of a vehicle during an accident includes a confinement. Upon the occurrence of an accident, the confinement is inflated to an expanded condition to restrain movement of the occupant by absorbing kinetic energy. To minimize rebound of the occupant from the confinement, an exhaust or blowout assembly is provided for dissipating the absorbed kinetic energy by enabling fluid to be discharged from the confinement. The exhaust or blowout assembly includes a patch which is ruptured or blown out of a blocking relationship with an aperture or opening in the confinement by fluid pressure. To preserve the integrity

of the exhaust assembly until a predetermined fluid pressure is present within the confinement, the patch is



mounted in such a manner, as to enable relative movement to occur between the patch and the confinement.

CHEMICAL

3,573,886 RARE-EARTH OXIDE AND WOLLASTONITE POLISHING COMPOSITION

Nicholas J. Goetzinger and Walter L. Silvernail, West Chicago, Ill., assignors to Kerr McGee Chemical Corp. No Drawing. Original application Aug. 2, 1965, Ser. No. 476,753. Divided and this application Aug. 19, 1968, Ser. No. 767,556

Int. Cl. B24d 3/02; C04b 31/16

U.S. Cl. 51-308

2 Claims

A polishing composition comprising a finely divided rare earth oxide and from about 0.1 to 75 weight percent wollastonite, said composition having a polishing speed in excess of 9.

3,573,887 METHOD OF MAKING GLASS FROM REACTED AND SHAPED BATCH MATERIALS

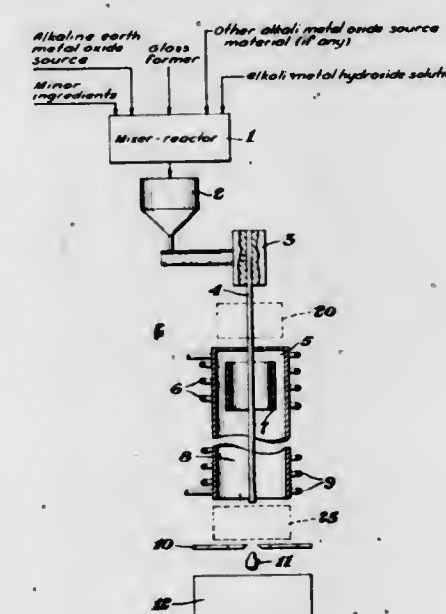
William A. Mod and Donald L. Caldwell, Lake Jackson, Tex., assignors to The Dow Chemical Company, Midland, Mich.

Filed Feb. 27, 1968, Ser. No. 708,673

Int. Cl. C03b 1/00

U.S. Cl. 65-18

11 Claims



This specification discloses a continuous, batch or semi-batch process for making glass and particularly but not limited to so-called soda-lime glass comprising in a continuous manner preparing a substantially reacted glass

making batch wherein an alkali metal hydroxide is employed as a constituent thereof to provide a source of at least 50 percent of the alkali metal flux values in the final glass, forming said batch into a continuous or discontinuous elongated shape, drying said batch so elongated, and thereafter passing the dried rigid shaped batch into a high temperature zone to rapidly and continuously melt the elongated batch and fine it. The molten glass so made can be solidified or worked into a useful configuration.

3,573,888 VAPOR OVERHEATING METHOD AND APPARATUS FOR STRENGTHENING GLASS

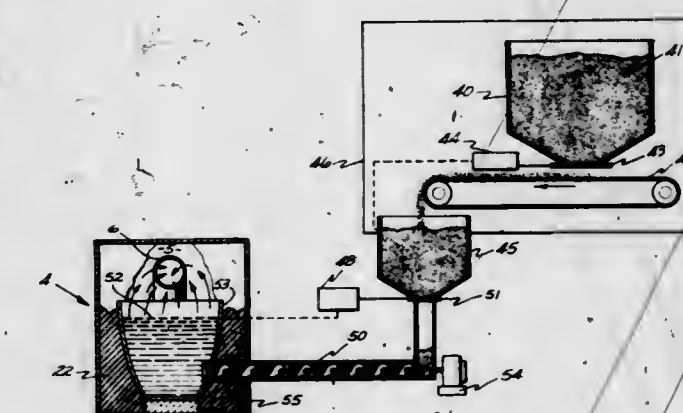
Burton S. Bogart, Lancaster, Ohio, assignor to Anchor Hocking Glass Corporation, Lancaster, Ohio

Filed Feb. 6, 1968, Ser. No. 703,455

Int. Cl. C03c 21/00

U.S. Cl. 65-30

14 Claims



In the strengthening of glass articles by exposure at elevated temperature to a metal compound in the vapor state, the vapor is overheated, in a zone spaced from the article, to a temperature substantially higher than that at which the article is maintained in the treating zone. Non-gaseous or condensed droplets entrained in the vapor are removed, and as the vapor is conducted or circulated into proximity with the article, the vapor temperature is reduced to approximately the temperature of the article to be treated. Apparatus is provided for automatically charging a source of the metal compound to a zone separate from the treating furnace, vaporizing it and overheating the vapor, conveying the vapor at controlled temperature and discharging it into the treating zone.

3,573,889

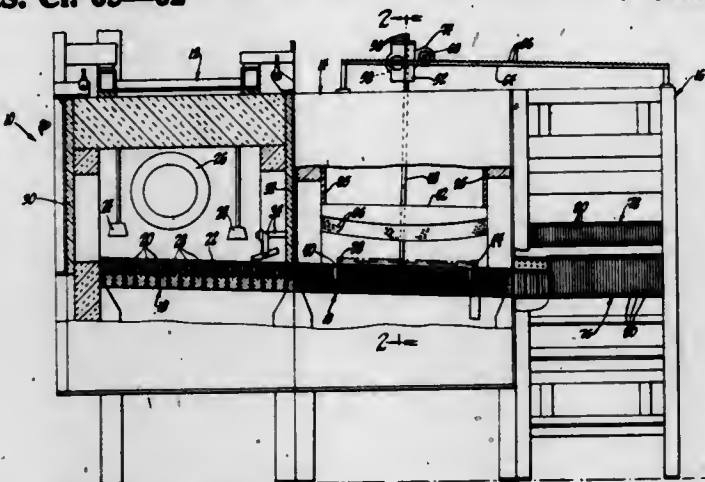
METHOD FOR SHAPING, TEMPERING AND LAMINATING GLASS SHEETS

Harold A. McMaster, Woodville, Norman C. Nitschke, Perrysburg, and John J. Kawecka, Toledo, Ohio, assignors to Permaglass, Inc., Millbury, Ohio
Filed June 16, 1969, Ser. No. 833,813

The portion of the term of the patent subsequent to Sept. 23, 1986, has been disclaimed
Int. Cl. C03b 27/00

U.S. Cl. 65-62

7 Claims



A method for making a tempered laminated window wherein a first sheet of glass is supported on fluid and heated to a temperature sufficient for deforming and tempering and thereafter lifted with an endless ring frame to force the sheet into engagement with a shaped surface. The sheet of glass is then tempered or cooled while supported on the frame. A second sheet is shaped with the exact same frame so that it has the same shape as the first sheet. The two tempered sheets of glass are then laminated. The laminating of the two tempered sheets of glass is possible because they are both supported and shaped by the same shaping frame and are cooled to rigidity before being removed from the shaping frame so that they are substantially exact duplicates.

3,573,890

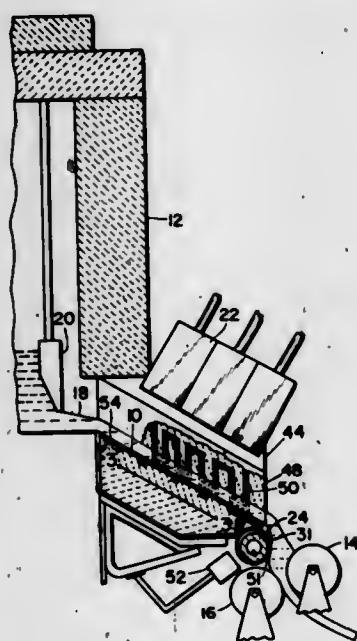
HEATED DELIVERY SYSTEM FOR SHEET GLASS

Allen C. Ibrig, Corning, N.Y., assignor to Corning Glass Works, Corning, N.Y.
Filed Dec. 14, 1967, Ser. No. 690,613

Int. Cl. C03b 13/00

U.S. Cl. 65-90

2 Claims



A system for delivering a sheet of molten glass from a forehearth. The system includes a channel having as its base a downwardly inclined platinum-lined delivery lip

with heated side portions and having an internally heated platinum tube at its discharge end. A plurality of burners direct heat to glass in the vicinity of the delivery lip, and a row of radiant heaters below the platinum tube and its glass discharge side heat the tube to minimize heat loss from beneath. Additional heaters are located in the side-walls of the channel.

3,573,891

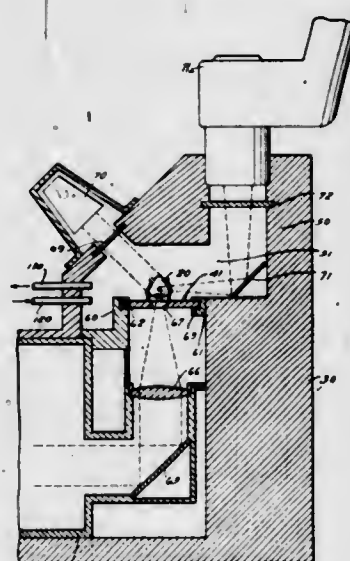
METHOD OF FORMING A THERMOMETER CONstriction AND APPARATUS THEREFOR

Waldemar A. Ayres, Rutherford, N.J., assignor to Becton, Dickinson and Company, East Rutherford, N.J.
Filed Apr. 1, 1968, Ser. No. 717,821

Int. Cl. C03b 23/10

U.S. Cl. 65-110

10 Claims



A method and apparatus for collapsing the bubble in the bore of a thermometer blank to form a constriction therein in the manufacture of clinical thermometers. The thermometer is positioned within a pressurized chamber and is subjected to localized heating by means of a heat source such as a gas burner or a laser, at the location of the bubble. Control means are provided to regulate the length of time the bubble is subjected to heat thereby providing a method of regulating the amount of collapse of the bubble in forming the constriction. The air pressure is regulated which provides additional control over the speed of collapse of the bubble and sudden decompression is used to stop the collapse at the proper moment. Holding means and control means are also provided for properly positioning a thermometer blank in alignment with the heat source. The result is a considerable improvement in the percentage of acceptable constrictions and a reduction of factory costs in the manufacture of clinical thermometers.

3,573,892

PROPAGATING COMPOST OF PEAT AND FERTILIZER

Peter Samuel Atkins, near Ipswich, Suffolk, and Derek Charles Attenburrow, Ipswich, Suffolk, England, assignors to Fisons Limited, Lelystown, Suffolk, England
No Drawing. Continuation-in-part of application Ser. No. 563,993, July 11, 1966. This application Apr. 23, 1968, Ser. No. 723,570

Claims priority, application Great Britain, July 23, 1965, 31,453/65

Int. Cl. C05f 11/02

U.S. Cl. 71-24

5 Claims

A superior propagating compost is provided which is substantially free from sand or soil, which contains a total

of at least 60% by weight of water based on the dry weight of the components, and which compost comprises a milled peat in admixture with a fertilizer base, optionally in admixture with a bulking or carrier material for the fertilizer base, the mixture having a pH value in the range 5.5 to 7.0; the milled peat being characterized in that it is a free flowing particulate peat all of whose particles pass through a 3/4 inch sieve aperture, less than 7% passing through a No. 60 BSS. sieve and in that it contains not less than 30% by volume of particles having a density greater than that of a petroleum ether having a boiling point in the range 80-100° C. at 760 mm. of mercury.

3,573,893

FERTILIZER FOR CEREALS AND PROCESS FOR ITS MANUFACTURE

Bengt Wadsted, Copenhagen, Denmark, assignor to Marden Anstalt, Vaduz, Liechtenstein
No Drawing. Filed Apr. 15, 1968, Ser. No. 721,166
Claims priority, application Sweden, Apr. 28, 1967, 6,124/67; Dec. 8, 1967, 16,925/67

Int. Cl. C05b 1/00

U.S. Cl. 71-41

14 Claims

Fertilizer composition and process of producing same wherein phosphoric acid is treated with ground dolomite, the reaction product being further treated with a selectively calcined dolomite which is either unslaked selectively calcined dolomite or slaked selectively calcined dolomite, and thereafter the reaction mass thus-obtained is treated with a product containing at least one potassium salt selected from the group consisting of potassium chloride and potassium sulfate.

3,573,894

PROCESS AND PLANT FOR REDUCING METALLIC OXIDES

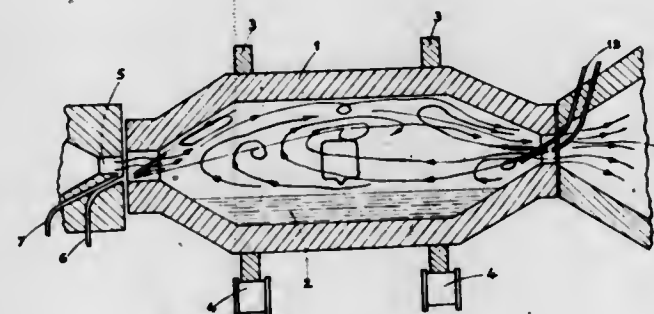
Pierre Marie Francois Fourt, 15 ter Avenue Clodoald, Saint-Cloud, Hauts-de-Seine, France
Continuation-in-part of abandoned application Ser. No. 532,719, Mar. 8, 1966. This application June 14, 1968, Ser. No. 753,817

Claims priority, application France, Mar. 18, 1965, 9,764

Int. Cl. C21b 11/06

U.S. Cl. 75-20

2 Claims



Metallic oxides are reduced in a rotating furnace heated by a burner at one end of the furnace producing a flame above the charge with oxygen blown into the flame through a plurality of nozzles and with introduction into the flame of a part of the particles of metallic oxides to be reduced. The total quantity of oxygen added to the flame is insufficient for complete combustion of the combustible materials emerging from the burner so as to maintain a reducing zone adjacent the burner. The remainder of the metallic oxides to be reduced are introduced at the other end of the furnace and additional

oxygen is supplied adjacent the smoke outlet at the other end of the furnace for oxidation of the reducing gases in the smoke and for additional heating of the furnace. A bath of reduced metal is maintained in the bottom of the furnace.

3,573,895

METHOD FOR IMPROVING REACTIONS BETWEEN TWO COMPONENTS OF A METALLURGICAL MELT

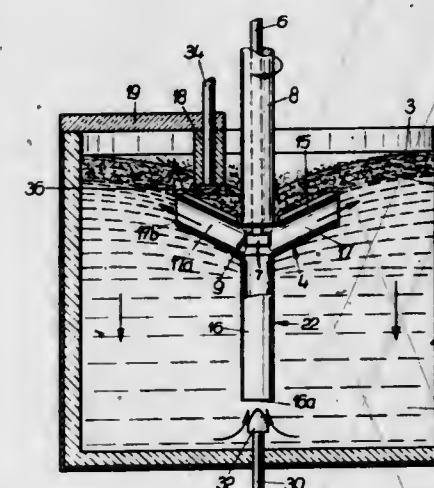
Jan-Erik Östberg, Torps Sateri, Bettina, Sweden
Filed Feb. 9, 1968, Ser. No. 704,458

Claims priority, application Sweden, Feb. 9, 1967, 1,800/67

Int. Cl. C21c 7/00, 7/02

U.S. Cl. 75-59

8 Claims



A method of improving the reaction between two components of different specific gravity or for homogenizing mixtures of components of different specific weight at least one of which is a fluid such as between a metallurgical melt and a slag layer, comprises producing a flow in the reaction zone between the two liquids of different specific gravities or specific weight and simultaneously introducing gaseous medium into the area of the reaction zone between the surfaces of the two layers. For this purpose, an inert gas may be used or a gas such as oxygen or hydrogen which will react with at least one phase or component of the mixture. It is also desirable in some instances to introduce a gas having a desulfurizing effect.

An apparatus for carrying out the method includes a rotating pump element disposed to draw the heavier liquid upwardly and discharge it adjacent the surface of the lighter liquid and which includes means for discharging a gas in the vicinity of the surface of the lighter liquid or upwardly and through the pump.

3,573,896

WET PROCESS FOR MANUFACTURING METALLIC COPPER

Shoichi Hori, 291 Yukigaya, Ota-ku, Tokyo, Japan, and Taijiro Okabe, 1-196 Kitasagimori, Aramaki, Sendai-shi, Japan

No Drawing. Filed June 10, 1968, Ser. No. 735,572

Int. Cl. C22b 9/02, 9/04, 15/08

U.S. Cl. 75-117

7 Claims

The process of manufacturing copper and sulfate salts of sodium, of potassium, of magnesium or of calcium, obtained as by-products, by reacting at least one copper compound, such as copper sulfate, copper carbonate,

copper oxide or basic copper salts of these compounds with salts of sodium, or of potassium, or of magnesium or of calcium which produce sulfite ions or hydrogen sulfite ions in the water solution, by heating in the presence of water.

3,573,897

IRON-NICKEL ALLOYS HAVING A HIGH NICKEL CONTENT

Xavier Wache, Sauvigny-les-Bois, France, assignor to Société des Forges et Ateliers du Creusot, Paris, France. Original application July 11, 1967, Ser. No. 652,484. Divided and this application Dec. 16, 1969, Ser. No. 885,502.

Claims priority, application France, July 12, 1966, 69,164

Int. Cl. C22c 39/40, 39/50, 39/54

U.S. Cl. 75—123

2 Claims

The weldability of iron-nickel alloys with a nickel content higher than 30% in weight is improved by introducing into the alloy an addition of at least one of the elements vanadium, titanium, zirconium and niobium. These elements form nitrides with the nitrogen present in the alloy.

3,573,898

HIGH YIELD-STRENGTH STEEL FOR LOW-TEMPERATURE SERVICES

Shigeki Mural, Shunichi Shimada, and Nobuhiko Nakao, Yokohama-shi, Japan, assignors to Nippon Kokan Kabushiki Kaisha, Tokyo, Japan.

No Drawing. Filed Jan. 31, 1969, Ser. No. 795,705. Claims priority, application Japan, Feb. 5, 1969, 44/6,710

Int. Cl. C22c 39/20

U.S. Cl. 75—124

4 Claims

High-yield-strength steel for low-temperature services, consisting essentially of 0.01% to 0.20% C, 0.10 to 0.60% Si, 1.00 to 1.50% Mn, 0.10 to 0.30% Cu, 0.10 to 0.40% Cr, 0.020 to 0.060% Sol Al, 0.008 to 0.020% N and the balance being Fe and unavoidable impurities, said steel having high tensile-strength of more than 50 kg./mm.², highly yield-strength of more than 35 kg./mm.², excellent low-temperature toughness and good weldability.

3,573,899

AUSTENITIC STAINLESS STEEL AND METHOD

Roland E. Groethe, Washington, Pa., assignor to Jessop Steel Company, Washington, Pa.

No Drawing. Filed Apr. 17, 1968, Ser. No. 721,932. Int. Cl. C22c 39/20

U.S. Cl. 75—128

4 Claims

A chromium-nickel-molybdenum austenitic stainless steel, primarily for superior corrosion resistance for special applications such as in the chemical and process industries, has been obtained by initial forging (rolling) of the same only between critical temperatures of 2050° to 2200° F., when said novel stainless steel has essentially the following composition on weight basis:

	Percent
Chromium	20.00 to 23.00
Nickel	23.00 to 26.00
Molybdenum	4.00 to 5.00
Silicon (maximum)	1.00
Manganese (maximum)	2.00
Columbium	0.20 to 0.40
Carbon (maximum)	0.04
Iron	Balance

An annealing step is not required to avoid intergranular corrosion in welding the novel alloy. The novel alloy can be employed in chemical apparatus used, for example in wet phosphoric acid processes.

3,573,900 META-STABLE AUSTENITIC STAINLESS STEELS OF IMPROVED HOT WORKABILITY

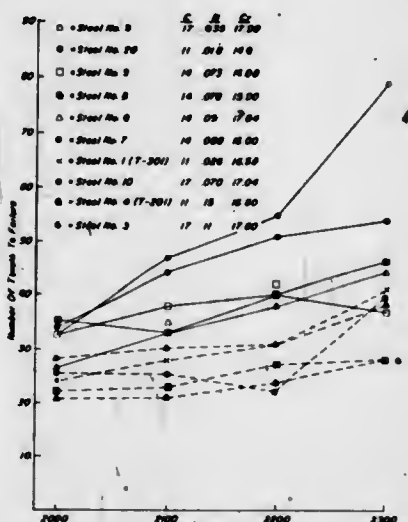
Kenneth G. Brickner, Wilkesburg Borough, and David C. Ludwigson, Hempfield Township, Westmoreland County, Pa., assignors to United States Steel Corporation.

Continuation-in-part of application Ser. No. 378,932, June 29, 1964. This application July 19, 1968, Ser. No. 746,138

Int. Cl. C22c 39/20, 39/26

U.S. Cl. 75—128

3 Claims



Chromium-manganese-nickel stainless steels of low, controlled nitrogen content having a predominantly austenitic structure as heat treated, and partially transformable to martensite on cold working, and possessing improved hot workability together with good corrosion resistance.

3,573,901

ALLOYS RESISTANT TO STRESS-CORROSION CRACKING IN LEADED HIGH PURITY WATER

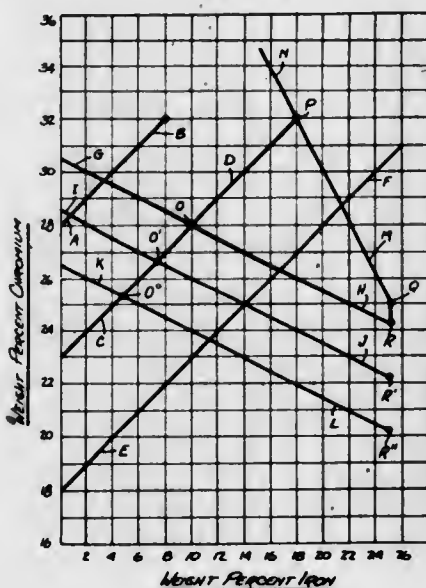
George Economy, Monsey, N.Y., assignor to The International Nickel Company, Inc., New York, N.Y.

Continuation-in-part of abandoned application Ser. No. 653,665, July 17, 1967. This application July 10, 1968, Ser. No. 743,674

Int. Cl. C22c 19/00

U.S. Cl. 75—171

39 Claims



A high nickel alloy containing substantial but controlled amounts of chromium, e.g., 28%, and advanta-

geously iron, having improved resistance to stress-corrosion cracking when used in high purity water environments contaminated by lead. Iron is beneficial, particularly in minimizing scale formation. Other constituents can be utilized to advantage, including columbium, molybdenum, vanadium, and tungsten.

3,573,902

YTTRIUM-CONTAINING WELDING ALLOYS

Eugene J. Delgrosso, 1468 Tuttle Ave., Wallingford, Conn. 06492

Filed Mar. 10, 1967, Ser. No. 623,184

Int. Cl. C22c 27/00

U.S. Cl. 75—174

4 Claims

An yttrium-containing alloy for welding filler rods to be used in welding and joining reactive-refractory metal alloy substrates. The alloy is created by nonconsumable arc-melting and contains from 1 to 6% by weight of retained yttrium with the balance consisting essentially of one or more of the reactive-refractory metals, including titanium, zirconium, and the refractory metals. The alloy is particularly effective in preventing and reducing oxygen contamination of weldments and substrates during high-temperature welding of reactive-refractory metal alloys under field of less-than-ideal conditions.

3,573,903

DUCTILE HIGH TEMPERATURE TUNGSTEN-RHENIUM ALLOY AND PROCESS FOR MAKING SAME

Eugene J. Delgrosso, Wallingford, Conn., assignor to United Aircraft Corporation, East Hartford, Conn. No Drawing. Filed July 21, 1964, Ser. No. 385,101

Int. Cl. C22c 27/00

U.S. Cl. 75—176

11 Claims

A novel ductile high-temperature tungsten-base alloy containing 3 to 20% rhenium and .05 to 3.0% yttrium or mixtures of yttrium and cerium is made by compacting powders of the ingredient elements, heating the compact at an intermediate temperature well below the compact's sintering temperature in a hydrogen atmosphere to effect removal of interstitials, and then sintering the compact in a dynamic vacuum.

3,573,904

COMBINATION OF ELECTROGRAPHY AND MANIFOLD IMAGING

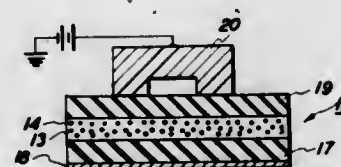
Harold Ernst Clark, Penfield, N.Y., assignor to Xerox Corporation, Rochester, N.Y.

Filed Jan. 9, 1967, Ser. No. 608,157

Int. Cl. G03g 13/22

U.S. Cl. 96—1

14 Claims



An imaging process wherein an imaging layer structurally fractureable in response to the combined effect of an applied electrical field and exposure to actinic electromagnetic radiation is sandwiched between a donor sheet and a receiver at least one of the sheets being at least partially transparent to the actinic electromagnetic

radiation. The sandwich is subjected to an imagewise electric field while the imaging layer is uniformly exposed to actinic electromagnetic radiation. Upon separation of the donor sheet and receiver sheet, the imaging layer fractures in imagewise configuration providing a negative image on one of the sheets and a positive image on the other.

3,573,905

METHOD OF PRODUCING ELECTROPHOTOSENSITIVE CADMIUM SULFIDE WITH CRYSTALS OF A HEXAGONALITY OF LESS THAN 80%

Katsuo Makino and Iwao Sawato, Kanagawa, Japan, assignors to Fuji Shashin Film Kabushiki Kaisha, Kanagawa, Japan

Filed June 10, 1966, Ser. No. 556,648

Claims priority, application Japan, June 11, 1965, 40/34,320

Int. Cl. C01f 7/70, 7/72, 7/74

U.S. Cl. 96—1.5

8 Claims

A method for producing an electrophotosensitive material composed mainly of cadmium sulfide by heating a powder of the sulfide in a temperature range from 100° C. to 500° C. for a period of time greater than 2 hours but not longer than 48 hours so that the dimensions of the powder particles do not become larger than 1.5 microns and the percentage of hexagonality of the crystalline powder is less than 80% after the period of heat treatment.

3,573,906

ELECTROPHOTOGRAPHIC PLATE AND PROCESS

William L. Goffe, Webster, N.Y., assignor to Xerox Corporation, Rochester, N.Y.

Filed Jan. 11, 1967, Ser. No. 608,606

Int. Cl. G03g 5/06, 5/08, 13/22

U.S. Cl. 96—1.8

15 Claims

An electrophotographic plate and imaging process are disclosed. The plate comprises a conductive substrate coated with a thick organic insulating layer overcoated with a thin photoconductive layer. Images may be formed by electrostatically charging the plate, exposing it to an image and developing with electroscopic marking material.

3,573,907

PROCESS FOR MAKING ETCHING RESISTS AND PHOTOGRAPHIC STRIPPING FILM FOR USE IN SUCH PROCESS

Johan Lodewijk Verelst and Albert August Reyniers, Kontich, Belgium, assignors to Gevaert-Agfa N.V., Mortsel, Belgium

No Drawing. Filed Dec. 9, 1966, Ser. No. 600,375

Claims priority, application Great Britain, Dec. 9, 1965, 52,372/65

Int. Cl. G03c 1/90, 11/12

U.S. Cl. 96—28

13 Claims

An etching resist on a metallic surface to be etched is produced by means of a photographic stripping film which includes directly attached to the film support a layer essentially consisting of hydrophilic colloid and a synthetic polymeric material which has been mixed as a latex with the hydrophilic colloid, which layer is at least water-permeable, if not warm water soluble. After the film is exposed and a hardened relief image is produced, the metallic surface is wet with a liquid which has a swelling action for hydrophilic colloids less than that of pure water. The film is applied to the wet metal surface, the film support is removed by stripping and the remainder of the film is developed to produce a hardened, water-insoluble relief image which is then finally dried. In one embodiment an unhardened, light-sensitive layer, soluble in warm water, is provided on a separate colloid-latex layer, the

light-sensitive layer being adapted to form a hardened water-insoluble relief image, there being no anchor remaining insoluble in warm water formed between the light-sensitive layer when in hardened condition and the colloid-latex layer, at least if the latter layer is insoluble in warm water. In another embodiment, the colloid-latex layer itself constitutes the unhardened, warm water soluble light-sensitive layer adapted to form a hardened, water-insoluble relief image. Preferably, the ratio of the synthetic polymeric material to the hydrophilic colloid, is between about 1:1 and 6:1.

3,573,908

PHOTOGRAPHIC TECHNIQUE FOR THE SELECTIVE DEPOSITION OF A CERAMIC SUBSTRATE GLAZE

Richard H. Minetti, Westfield, N.J., assignor to Bell Telephone Laboratories, Incorporated, Murray Hill, N.J.
No Drawing. Filed June 6, 1969, Ser. No. 831,250
Int. Cl. G03c 7/00

U.S. Cl. 96—34 4 Claims
A selective glaze pattern less than 13 microns in thickness is obtained by preparing a mixture of a photoresist and a multicomponent oxide glaze frit, applying the resultant mixture to an alumina substrate and exposing, developing and firing the resultant coating.

3,573,909

METHOD OF DEPOSITING PHOSPHOR DOT TRIADS ON A CATHODE RAY TUBE SCREEN

Richard G. O'Fallon, Westchester, Ill., assignor to Motorola, Inc., Franklin Park, Ill.
Filed May 10, 1968, Ser. No. 728,299
Int. Cl. G03c 5/00

U.S. Cl. 96—36.1 6 Claims
The faceplate panel and shadow mask assembly of a color cathode ray tube are mounted on a lighthouse in a spaced relation, to a point source of light. A force is applied to the shadow mask screen to tilt the same about the springs connecting it to studs in the faceplate panel. With the mask in the tilted position, the spacing between the shadow mask and the screen when depositing the phosphor dot triad thereon is equal to the spacing between the shadow mask and the screen in an operating installation.

3,573,910

METHOD OF MAKING REPRODUCTION ART WORK LAYOUTS AND PRINTING PLATES FOR COMPOSITE UNIT RECORD CARDS

Henry John Gulliani, Diamond Bar, Calif., assignor to The Bell and Howell Company, Chicago, Ill.
Filed Dec. 1, 1967, Ser. No. 687,339
Int. Cl. G03c 5/04

U.S. Cl. 96—41 20 Claims
A process for making reproduction art work layouts and printing plates for a large plurality of non-conventional composite unit record cards each of which has a unique machine readable portion and a related visually readable portion. A negative photographic material is accurately photographically scribed and a fully punched conventional unit record card is accurately imaged onto a specific portion thereof. The negative is then developed and a positive template is made therefrom so that the machine readable "holes" are black. The positive template is then placed on a light box and covered with a sheet of plastic. A series of conventional machine readable unit record cards are specially punched and sprayed with two coats of black paint to make them opaque. These painted cards are then individually taped in place on the plastic over the positive template so that no light

passes through the holes of the individually punched black cards. The positive also serves to locate visually readable sheets corresponding to each of the painted cards. A white sheet is then slipped between the individually punched cards and the plastic. Each of the resulting individual layouts is then used as a reproduction art work layout for a different printing plate in a series of printing plates, which are used to print a series of unique composite cards having printing that is located with a high degree of accuracy.

3,573,911

LIGHT-SENSITIVE COMPOSITION CONTAINING ARYL-THIOKETONES AS COLOR FORMERS

Richard A. Fotland, Lyndhurst, Ohio, assignor to Horizons Incorporated, a Division of Horizons Research Incorporated
No Drawing. Filed Feb. 2, 1967, Ser. No. 613,404
Int. Cl. G03c 3/24

U.S. Cl. 96—48 12 Claims
The photosensitive composition of this invention comprises an organic halogen compound and a color former which is an aryl-thioketone, both of which are dispersed in or supported on a binder or carrier material. The composition exhibits orthochromatic sensitivity in the visible portion of the spectrum and when it is used in the form of a film, the film is capable of being optically developed by exposure to near infrared radiation.

3,573,912

STABILIZATION OF SILVER HALIDE PRINTOUT RECORDING PAPERS

Richard P. Brown, Monrovia, Calif., assignor to Bell & Howell Company, Chicago, Ill.

Continuation of abandoned application Ser. No. 387,029, Aug. 3, 1964. This application May 4, 1967, Ser. No. 641,103

Int. Cl. G03c 5/38, 5/32

U.S. Cl. 96—61 16 Claims
A process in which a printout recording paper having incorporated developing agent is photolytically developed and a stabilizing agent is applied subsequent thereto.

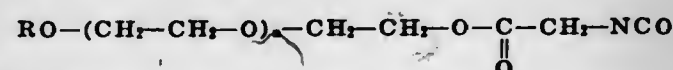
3,573,913

LIGHT-SENSITIVE SILVER HALIDE MATERIALS

Jozef Frans Willems, Wilrijk-Antwerp, and Joseph Louis De Munck, Heide-Kalmthout, Belgium, assignors to Gevaert-Agfa N.V., Mortsel, Belgium
No Drawing. Filed Aug. 22, 1966, Ser. No. 573,832
Claims priority, application Great Britain, Oct. 7, 1965, 42,590/65

Int. Cl. G03c 5/30, 1/28, 1/06

U.S. Cl. 96—66.3 15 Claims
Photographic light-sensitive materials are described which include a urethan which is the reaction product of (1) an alkoxy polyethylene glycol ester of isocyanatoacetic acid having the formula



wherein

R represents an alkyl radical having from 1 to 5 carbon atoms, and
n represents an integer of from 1 to 35, and

an unsubstituted, saturated, aliphatic alcohol; or (2) an isocyanate and a mono-alkyl ether of polyoxyethylene glycol. These materials upon development with a hydroquinone-formaldehyde-bisulphite developer are substantially free of "peppers."

3,573,914

PHOTOGRAPHIC DEVELOPER COMPOSITION CONTAINING CARBONYL BISULFITE AMINE CONDENSATION PRODUCT AND FREE AMINE

Thomas J. Masseth, Rochester, N.Y., assignor to Eastman Kodak Company, Rochester, N.Y.
No Drawing. Continuation-in-part of abandoned application Ser. No. 583,935, Oct. 3, 1966. This application Aug. 18, 1967, Ser. No. 661,532
Int. Cl. G03c 5/30

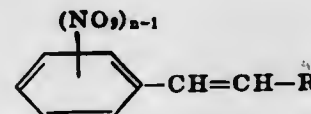
U.S. Cl. 96—66.4 19 Claims
Photographic developer composition for high-contrast elements comprising a developing agent, a carbonyl bisulfiteamine condensation product and free amine. A continuous process for using the developer composition in a continuous transport processing machine is also described.

3,573,915

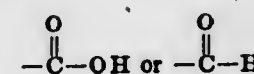
PHOTOGRAPHIC SILVER HALIDE EMULSIONS CONTAINING NITRO-SUBSTITUTED OR UNSUBSTITUTED CINNAMIC ACID OR CINNAMALDEHYDE

Giuliano Luciani and Fritz Dersch, Binghamton, N.Y., assignors to GAF Corporation, New York, N.Y.
No Drawing. Filed Nov. 16, 1966, Ser. No. 594,675
Int. Cl. G03c 1/34, 1/06, 1/76

U.S. Cl. 96—67 10 Claims
A light-sensitive silver halide material having thereon a light-sensitive silver halide emulsion layer and containing, in the light-sensitive silver halide layer or in a layer in contact therewith, as an antifoggant and stabilizer a compound having the formula:



where R is either



and n is 1 or 2.

3,573,916

METHOD FOR PREPARING COLOR ELEMENTS PROVIDING MOTTLE-FREE DYE IMAGES

Richard G. Yost, Spencerport, and Irving S. Willison, Rochester, N.Y., assignors to Eastman Kodak Company, Rochester, N.Y.
No Drawing. Filed Apr. 8, 1968, Ser. No. 719,889
Int. Cl. G03c 1/76

U.S. Cl. 96—74 15 Claims
Mottling of dye images in color coupler-bearing silver halide emulsions which have been coated on electron bombarded hydrophobic surfaces within about 30 minutes after bombardment is substantially eliminated by using sulfo-substituted cyanine or merocyanine spectral sensitizing dyes.

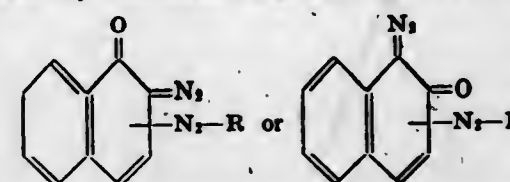
3,573,917

LIGHT-SENSITIVE PRINTING PLATE COMPOSITION

Takashi Okamoto, 6-4 Chuoo 2-chome, Warabi, Saitama Prefecture, Japan
No Drawing. Filed July 12, 1968, Ser. No. 744,298
Int. Cl. G03c 1/60, 1/54

U.S. Cl. 96—75 2 Claims
Photo process sensitive layer comprising a resin obtained by heating a resin of the cresol novolak type and an organic phosphate containing at least one benzene

nucleus under acidic conditions and a sensitive agent represented by the following general chemical structure



wherein R is an aromatic group having no radical that is capable of producing a water-soluble alkaline salt.

3,573,918

UNDERLAYERS OF PLASTICIZER-POLYMER MIXTURES FOR PHOTOPOLYMER THERMAL TRANSFER ELEMENTS

Vaughan Crandall Chambers, Jr., Wilmington, Del., and David W. Woodward, Little Silver, N.J., assignors to E. I. du Pont de Nemours and Company, Wilmington, Del.

No Drawing. Continuation-in-part of application Ser. No. 375,628, June 16, 1964. This application Sept. 26, 1967, Ser. No. 670,755

Int. Cl. G03c 11/12, 1/68

U.S. Cl. 96—87 12 Claims
A photopolymerizable thermal transfer element comprising (1) a support, (2) a thermoplastic stratum comprising a compatible mixture of about 90 to 50 parts of thermoplastic polymer and about 10 to 50 parts of plasticizer, said mixture being solid below 40° C. and (3) over said thermoplastic stratum a photopolymerizable stratum which is solid below 40° C. and has a stick temperature above about 40° C. and below 150° C. in its unexposed state and a stick temperature in its exposed state of at least 10° C. greater than that of its unexposed state.

3,573,919

PREPARATION OF LIGHT-DEVELOPABLE, DIRECT-WRITING SILVER HALIDE EMULSIONS BY RAPID PRECIPITATION AND LONG RIPENING

John Howard Bigelow, Rochester, N.Y., assignor to E. I. du Pont de Nemours and Company, Wilmington, Del.
No Drawing. Filed Jan. 14, 1969, Ser. No. 791,165
Int. Cl. G03c 1/02

U.S. Cl. 96—94 10 Claims
Light-developable, direct-writing radiation-sensitive silver halide emulsions having reduced photolyzed image access time and improved sensitometric properties are prepared by precipitating silver chloride in not more than 3 minutes in the presence of 10 to 20 mole percent based on silver of a water-soluble plumbous salt in an acidified aqueous colloid solution, converting the silver chloride to silver bromide by adding a stoichiometric excess of a water-soluble bromide salt and slowly ripening the emulsion by heating at about 150–180° F. for at least 3 hours while adding 10 to 20 mole percent of a separate fine grain silver bromide. The emulsion is washed and redispersed, and a halogen acceptor added along with other final adjuvants prior to coating.

3,573,920

FINE GRAIN SILVER HALIDE EMULSIONS CONTAINING NOVEL DYE COMBINATIONS

Gary L. Hiller, Rochester, N.Y., assignor to Eastman Kodak Company, Rochester, N.Y.

No Drawing. Continuation-in-part of abandoned application Ser. No. 686,831, Nov. 30, 1967. This application Sept. 5, 1968, Ser. No. 757,789
Int. Cl. G03c 1/22, 1/28

U.S. Cl. 96—104 41 Claims
Fine grain photographic silver halide emulsions are spectrally sensitized with the combination of (1) a carbocyanine dye having a maximum sensitivity peak at a wavelength shorter than 6563 Å., and (2) a carbocyanine

dye having a maximum sensitivity peak at a wavelength longer than 6563 Å.; each of the dyes comprising heterocyclic nuclei selected from a 3-sulfoalkylbenzothiazole nucleus, a 3-sulfoalkylbenzoxazole nucleus and a 1-sulfoalkyl-2-naphtho[1,2-d]thiazole nucleus, the two heterocyclic nuclei of each of said dyes being joined by a trimethylene chain which contains an alkyl group on the meso carbon atom thereof.

3,573,921

SILVER HALIDE EMULSIONS CONTAINING POLYNUCLEAR UNDISSOCIATED CYANINE DYES
Philip W. Jenkins and Leslie G. S. Brooker, Rochester, N.Y., assignors to Eastman Kodak Company, Rochester, N.Y.
No Drawing. Filed July 28, 1967, Ser. No. 656,648
Int. Cl. G03c 1/10

U.S. Cl. 96—105

10 Claims

Novel polynuclear cyanine dyes are prepared from certain 3,5-pyrazolidinedione compounds. The cyanine dyes obtained extend the sensitivity of photographic silver halide emulsions into the red and infrared regions of the spectrum. 5- \langle 2,5-bis[3,3-dimethyl-1-(4-sulfo-2-indolylidene)ethylidene]cyclopentylidene \rangle -1,2-diphenyl-3,5-pyrazolidinedione ditriethylammonium salt is an example of the new dye compounds.

3,573,922

PHOTOPOLYMERIZABLE COMPOSITION AND PROCESS

John B. Rust, Los Angeles, Calif., assignor to Hughes Aircraft Company, Culver City, Calif.
Continuation-in-part of application Ser. No. 450,397, Apr. 23, 1965. This application May 15, 1969, Ser. No. 824,902
Int. Cl. G03c 1/68

U.S. Cl. 96—115

17 Claims

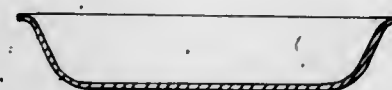
A method of photopolymerization of a photopolymerizable vinyl monomer system with a photooxidant and catalyst combination capable of coreactivity to effect visible photopolymerization in visible light and more particularly light-activatable dye and sulfonic acid catalyst combination reacting with each other to initiate photopolymerization in and over the light range of about 3800 Å. to 7200 Å.

3,573,923

DIELECTRIC HEATING OF FOOD
Kenneth D. Meiser, Dallas, Tex., assignor to Plastics Mfg. Co., Dallas, Tex.
Filed June 18, 1968, Ser. No. 737,924
Int. Cl. B65d 81/34

U.S. Cl. 99—1

6 Claims



A method of preparing food in which the food is placed in a receptacle consisting essentially of a cellulose-filled thermoset aminoplast and having a wall thickness from .015 to .05 inch, and is then exposed to dielectric heating which would char the receptacle if empty.

3,573,924

METHOD OF PELLETING ANIMAL FEED INGREDIENTS CONTAINING HYDROPHILIC MATERIALS

Albert I. Zarow, Mount Pulaski, Ill., assignor to Kaumass Laboratories, Inc., Mount Pulaski, Ill.
No Drawing. Filed May 31, 1967, Ser. No. 642,354
Int. Cl. A23k 1/02

U.S. Cl. 99—6

7 Claims

A method for pelleting particulate animal feed compositions containing molasses and other hygroscopic ingredients

which comprises using dehydrated molasses as the source of carbohydrate in the composition and preheating the composition to a predetermined temperature prior to the introduction of live steam for lubrication to control precisely the moisture content of the pelleted material and increase the efficiency of the pelleting process.

3,573,925
PROCESS

Roger L. Harned, Terre Haute, Ind., assignor to Commercial Solvents Corporation, New York, N.Y.
No Drawing. Continuation-in-part of application Ser. No. 647,636, June 21, 1967. This application Apr. 16, 1968, Ser. No. 721,596
Int. Cl. A23k 1/17; C07d 85/12

U.S. Cl. 99—9

17 Claims

Stabilization of cycloserine in a fermented beer containing cycloserine and O-carbamyl-D-serine by complexing same with a zinc salt.

3,573,926

PROCESS FOR PREPARING ENRICHED RICE
Ichiro Chibata, Toyonaka-shi, and Hiroshi Ito, Nishinomiya-shi, Japan, assignors to Tanabe Sanyaku Co., Ltd., Osaka, Japan
No Drawing. Filed Feb. 9, 1968, Ser. No. 704,273
Claims priority, application Japan, Feb. 16, 1967, 42/9,966
Int. Cl. A23i 1/30, 1/10

U.S. Cl. 99—11

4 Claims

A method of enriching polished rice wherein the rice is soaked in an aqueous solution of a water-soluble thiamine salt followed by treatment with alkaline material. The treatment may also be followed by glutenization of the surface of the rice as by steaming.

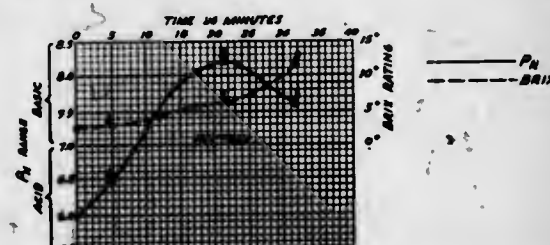
3,573,927

METHOD AND PRODUCTS OF PROCESSING RAW MAPLE SAP

Raymond S. Nessly, 144 N. Marshall St., York, Pa. 17402
Continuation-in-part of abandoned application Ser. No. 500,788, Oct. 22, 1965. This application June 4, 1969, Ser. No. 834,204
Int. Cl. A23i 1/00

U.S. Cl. 99—28

6 Claims



Raw acidic maple sap is heated to produce a product having a pH of between 7.5 and 8.0. Characteristics of the product can be varied by blending with quantities of other prepared maple sap products.

3,573,928

PROCESS FOR PRODUCING BEER
Nicholas G. Marotta, Green Brook, Harvey Bell, North Plainfield, and Gary Bud Charlick, Somerville, N.J., assignors to National Starch and Chemical Corporation, New York, N.Y.
No Drawing. Filed Jan. 21, 1969, Ser. No. 792,806
Int. Cl. C12h 1/14

U.S. Cl. 99—48

20 Claims

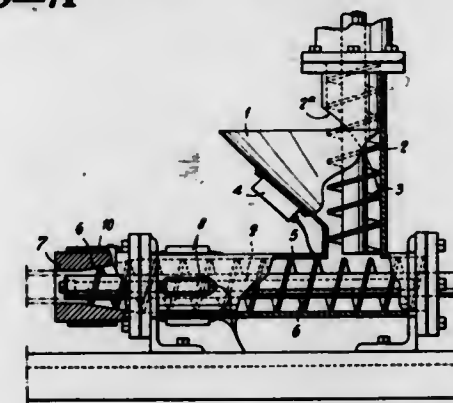
A process for preparing a beer which, after being poured, forms a voluminous, creamy-textured and long-lasting foam. The process comprises the addition to the beer, in specified amounts, of a dextrinized starch acid-ester of a substituted dicarboxylic acid.

3,573,929

VEGETABLE EXTRACT PRODUCTION
James Leroy Anderson, Marysville, Ohio, Joachim Artur Gaedke, Wiesbaden, Germany, and Abraham Rudolph Miskin, Marysville, Ohio, assignors to Societe d'Assistance Technique Pour Produits Nestles S.A., Lausanne, Switzerland
Filed Mar. 26, 1968, Ser. No. 716,060
Claims priority, application Switzerland, Apr. 14, 1967, 5,328/67; Feb. 27, 1968, 2,837/68
Int. Cl. A23f 1/08, 3/02

U.S. Cl. 99—71

13 Claims



In a freeze-drying process for tea or coffee extract the fines produced by grinding the frozen extract are compressed to a solid while remaining frozen and the solid is reground. The fines may be compressed in a continuous extruder or a tablet press.

3,573,930

PREPARATION OF DRIED CHEESE
Robert F. Dale, Brookfield, Wis., assignor to Universal Foods Corporation, Milwaukee, Wis.
No Drawing. Filed Mar. 8, 1968, Ser. No. 711,516
Int. Cl. A23c 19/00

U.S. Cl. 99—115

11 Claims

A process for preparing dried cheese which comprises admixing a cheese with an emulsifier, extruding the cheese with a ram type extruder into elongated noodle form having a diameter of up to about 1/2 inch, drying the extruded noodle at elevated temperatures of up to about 115° F. to a moisture content of up to about 17%. Cheeses which contain up to about 53% fat are adapted for processing to produce a dry storage stable product with essentially no fat separation and do not require refrigeration during storage.

3,573,931

PREPARING DRIED CHEESE
Robert F. Dale, Brookfield, Wis., assignor to Universal Foods Corporation, Milwaukee, Wis.
No Drawing. Filed Mar. 8, 1968, Ser. No. 711,517
Int. Cl. A23c 19/00

U.S. Cl. 99—115

15 Claims

A process for preparing dried cheese which comprises extruding a high moisture content cheese, with a ram type extruder, into elongated noodle form having a diameter of up to 3/8 inch, drying the extruded noodle at elevated temperatures of up to about 115° F. to a moisture content up to about 17%. Cheeses which contain up to about 53% fat are adapted for processing by the method of this invention to produce a storage stable product which does not require refrigeration.

3,573,932

HYDRATED FREEZE-DRIED CONFECTIONS
Maurie Laskin, Milwaukee, Wis., assignor to W. R. Grace & Co., New York, N.Y.
No Drawing. Filed Mar. 3, 1967, Ser. No. 620,278
The portion of the term of the patent subsequent to Aug. 6, 1985, has been disclaimed
Int. Cl. A23g 3/00

U.S. Cl. 99—134

10 Claims

Freeze-dried, substantially dry confectionary food products to which a chewy consistency has been imparted

by partially rehydrating the same to a moisture content of from about 2 to about 10 percent, by weight; and a method for making such products by freeze drying to a substantially dry condition and then controllably rehydrating the same.

3,573,933

CHEWING GUM BASE
David M. MacLeod, Sarnia, Ontario, Canada, assignor to Esso Research and Engineering Company
No Drawing. Filed Nov. 14, 1968, Ser. No. 775,925
Int. Cl. A23g 3/00

U.S. Cl. 99—135

5 Claims

A chewing gum base is compounded and composed of a low melting point paraffin wax and a higher melting point microcrystalline wax together with small but effective amounts of poly alpha-olefins, for example, polyisobutylene, and of elastomeric olefinic copolymers, such as butyl rubber or ethylene/propylene rubber.

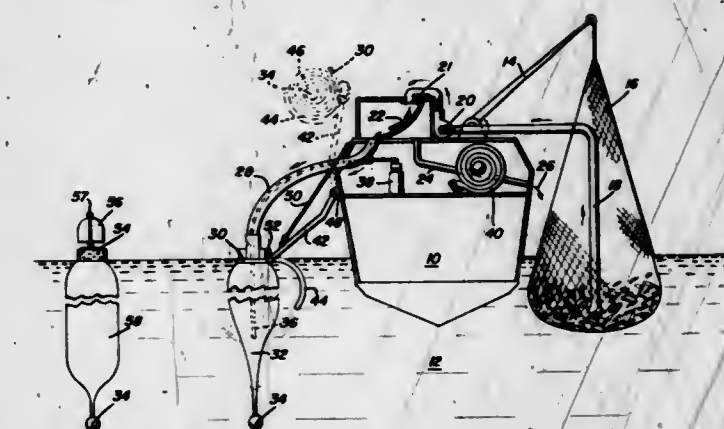
3,573,934

METHOD FOR TRANSPORTING AND STORING AQUATIC FAUNA AND PRESERVING THE SAME

Fern Wood Mitchell, Washington, D.C., assignor to W. R. Grace & Co., New York, N.Y.
Filed July 19, 1968, Ser. No. 746,180
Int. Cl. A23b 3/12

U.S. Cl. 99—158

2 Claims



The disclosed invention is directed to a method and apparatus for transporting and storing aquatic fauna which includes means for removing aquatic fauna from the aquatic environment, separating the fauna from any residual materials, transferring the fauna to a large flexible elongated storage vessel vertically disposed in the aquatic environment, and when the storage vessel is filled, towing same to a processing station. The present invention also provides a method for preserving the aquatic fauna while in storage.

3,573,935

PROCESS OF PASTEURIZATION OF WHOLE EGGS
John C. Sourby, Mount Kisco, and Willibald F. Kohl, Nantuet, N.Y., and Rudolph H. Ellinger, Chagrin Falls, Ohio, assignors to Stauffer Chemical Company, New York, N.Y.
No Drawing. Continuation-in-part of application Ser. No. 694,831, Jan. 2, 1968. This application May 4, 1970, Ser. No. 34,911
Int. Cl. A23b 5/00

U.S. Cl. 99—161

4 Claims

A process of pasteurizing liquid whole eggs which consists of separating the eggs from the shells and forming a homogeneous mixture. Sufficient food grade alkali agent is then incorporated therein to raise the pH thereof about 0.5 unit above the natural pH of the eggs and not to exceed a pH of about 8.3. The mixture is then heated to a pasteurization temperature of from 125 to 145° F. for from 0.5 to 10 minutes.

3,573,936

PILICATIC ACID AND THIODIPROPIONIC ACID AS ANTIOXIDANTS FOR USE IN ANIMAL FATS AND VEGETABLE OILS

Arthur Karchmar, Clifton, N.J., and Kevin L. McDonald, Vancouver, British Columbia, Canada, assignors to Rayonier Incorporated, New York, N.Y.
No Drawing. Filed Dec. 15, 1967, Ser. No. 690,755
Int. Cl. A23b 1/12

U.S. Cl. 99-163

7 Claims

A mixture of pilicatic acid and thiodipropionic acid exhibits a synergistic antioxidant effect when added to animal fats and vegetable oils and foodstuffs containing these materials. The pilicatic acid-thiodipropionic acid additive, which comprises substantially equal amounts of each component, greatly increases the storage life of fats and oils when added thereto in amounts approximating 100 parts per million.

3,573,937

PROCESS FOR PRODUCING BANANA AND PLANTAIN PRODUCT FRIED CHIPS

Edward J. Sarna, Yonkers, N.Y., assignor to Robert C. Berg, Jr., Bronx, N.Y., and Barstow Bates, Old Greenwich, Conn., fractional part interest to each
No Drawing. Filed Jan. 26, 1968, Ser. No. 700,709
Int. Cl. A23b 7/00; 3/00; A23I 1/100

U.S. Cl. 99-204

7 Claims

Fried chip products are prepared from thin heat-treated sections of mature, unripened banana and plantain pulp which have been dehydrated.

3,573,938

METHOD AND APPARATUS FOR DEHYDRATING FOOD FOAMS

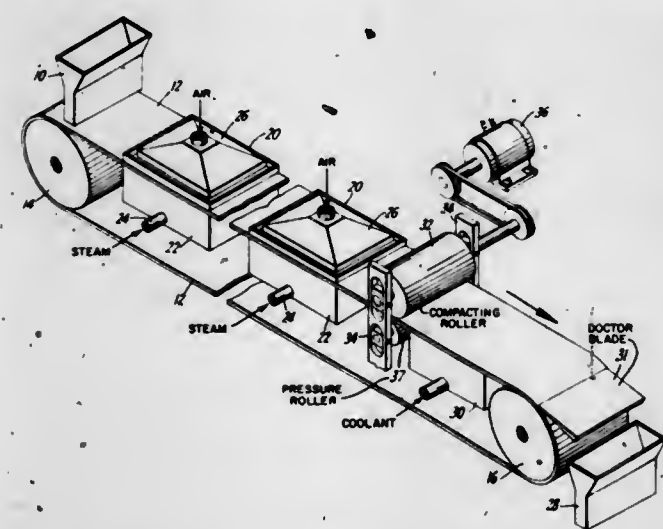
Thomas Kenneth Kelly, Fairfield, and Herbert Julius Light, Stamford, Conn., assignors to AMF Incorporated, New York, N.Y.

Filed Aug. 12, 1968, Ser. No. 751,821

Int. Cl. A23b 7/02

U.S. Cl. 99-206

2 Claims



Apparatus and method for drying of foam food products on a continuous belt including means for casting the product on the belt, drying means and means for compacting the product while on the belt.

3,573,939

Ta₂O₅ NUCLEATED GLASS-CERAMIC ARTICLES

George H. Beall, Corning, N.Y., assignor to Corning Glass Works, Corning, N.Y.

No Drawing. Filed Jan. 19, 1968, Ser. No. 699,020

Int. Cl. C03c 3/22

U.S. Cl. 106-39

4 Claims

This invention relates to the manufacture of glass-ceramic articles in the Li₂O-SiO₂ composition field which are nucleated with Ta₂O₅. Such articles can be transparent to opaque and contain the ferroelectric perovskite crystal

LiTaO₃ as the principal crystal phase or, when containing Al₂O₃, can be transparent to opaque and contain the low expansion beta-spodumene solid solution and beta-Ta₂O₅ as the primary crystal phase.

3,573,940

FLY ASH BASED PREFORMED SUPPORT STRUCTURES

Charles F. Cockrell and Harry E. Shafer, Jr., Morgantown, W. Va., assignors to the United States of America as represented by the Secretary of the Interior
No Drawing. Filed Jan. 31, 1969, Ser. No. 795,729
Int. Cl. C04b 29/02

U.S. Cl. 106-84

7 Claims

A process of making a preformed support structure, such as brick, comprising admixing fly ash, a coarse aggregate, sodium silicate, and hydrochloric acid; shaping under pressure; drying and firing at elevated temperatures.

3,573,941

EXPANDED MAGNESIA CEMENT

John Lee Edwards, Great Bookham, and James Macoustra, Sutton, England, assignors to BP Chemicals (U.K.) Limited, London, England
No Drawing. Filed Feb. 26, 1968, Ser. No. 707,941
Claims priority, application Great Britain, Mar. 30, 1967, 14,449/67

Int. Cl. C04b 9/14; 21/02

U.S. Cl. 106-88

8 Claims

An expanded magnesia cement containing a volume of gas at least equal to the volume of the cement in its unexpanded state. The cement is formed by mixing magnesium oxide, magnesium chloride and water in the presence of a foam-forming surface active agent and in the presence of a foam stabilizing water-soluble silicone, entraining a gas into the resulting mix to form a flowable foam and allowing the foam to set. Particularly useful cement from an economic and structural point of view have three to twelve times the volume of gas present. A method for the production of these expanded cements is also claimed.

3,573,942

CURING AGENT FOR DAMP CONCRETE

Willy K. Wassenberg, Aachen, and Axel K. Commichau, Hamburg-Rissen, Germany, assignors to Mobil Oil Corporation, New York, N.Y.

No Drawing. Filed Dec. 8, 1967, Ser. No. 688,997

Claims priority, application Germany, Dec. 8, 1966, M 71,968

Int. Cl. C08h 11/00; C08f 19/14

U.S. Cl. 106-227

12 Claims

A curing agent for damp concrete is provided comprising a cationically adjusted dispersion of a resin, a drying oil, a solvent for said resin, an amine-containing emulsifier and water.

3,573,943

BLEACHING PROCESS

Joseph Barron Rowse, Kenneth John Burr, and Terence Wilfred Webb, St. Austell, Cornwall, England, assignors to English Clays Lovering Pochin & Company Limited, St. Austell, Cornwall, England

Filed Aug. 5, 1968, Ser. No. 750,181

Claims priority, application Great Britain, Aug. 11, 1967, 37,123/67

Int. Cl. C09c 1/02; 1/42

U.S. Cl. 106-288

7 Claims

In a process for bleaching a mineral wherein there is formed a flowing stream of an aqueous suspension of the mineral and wherein a dithionite bleaching compound is dispersed in said stream to bleach said mineral, the improvement which comprises dispersing said dithionite bleaching compound in said stream at a known rate, passing a quantity of said stream at a steady rate of flow and after the dithionite has been dispersed in said stream

for a time ranging from ¼ minute to 30 minutes through a housing containing an electrode assembly for a polarograph, measuring the polarographic diffusion current corresponding to the concentration of unreacted dithionite bleaching compound remaining in said stream, and if necessary adjusting the rate at which the dithionite bleaching compound is dispersed in said stream to ensure that the concentration of the dithionite bleaching compound in said stream is at a desired level.

3,573,944

MODIFIED CLAY

Stanley E. Gebura, Mount Lakes, N.J., assignor to Interpace Corporation, Parsippany, N.J.

No Drawing. Filed Apr. 22, 1968, Ser. No. 723,301

Int. Cl. C09c 3/02

U.S. Cl. 106-288

15 Claims

A process has been provided for modifying siliceous substances containing aluminum oxide from which bound water has been driven off, such as by heating at elevated temperature or by azeotropic distillation with certain solvents. The product thus prepared is reacted with an alkyl-ene divinyl ether capable of polymerization at a site of the siliceous substance from which water has been removed. As a surprising advantage, a divinyl ether does polymerize substantially only on the surface of the siliceous materials rather than propagate into the solvent and form homopolymers. Products prepared by this process are within the scope of the invention as are the uses of these products for purposes as adjuvants in poly(ester) and oleaginous composition formulations.

3,573,945

PROCESS FOR IMPROVING PIGMENTARY METAL OXIDES

Harry Lott, Jr., Akron, and Albert Dietz, Wadsworth, Ohio, assignors to PPG Industries, Inc., Pittsburgh, Pa.

No Drawing. Filed July 6, 1965, Ser. No. 469,881

Int. Cl. C09c 1/36; 3/00

U.S. Cl. 106-300

18 Claims

Pigmentary metal oxides, particularly titanium dioxide, are prepared by vapor phase oxidation of corresponding metal halides. A method for wet treating raw metal oxide to improve pigmentary properties is described.

3,573,946

PIGMENT COMPOSITIONS

Karlheinz Wolf, Cologne-Stammheim, Volker Aign, Langenfeld, Reinhold Horne, Cologne-Flittard, and Artur Haus, Leverkusen, Germany, assignors to Farbenfabriken Bayer Aktiengesellschaft, Leverkusen, Germany

No Drawing. Filed Sept. 29, 1967, Ser. No. 671,555

Claims priority, application Germany, Oct. 1, 1966, F 50,343; Feb. 1, 1967, F 51,412

Int. Cl. C09c 3/02

U.S. Cl. 106-308

19 Claims

Organic or inorganic pigments are treated by contact in the dry or dispersed form, with cycloaliphatic amine, preferably at elevated temperatures. Optionally, the treated pigments are then acidified. Treated pigments exhibit good dispersibility and high tinctorial strength.

3,573,947

ACCELERATOR FOR GYPSUM PLASTER

William Kinkade, Lisle, Ill., and Eugene Edward O'Neill, Okeene, Okla., assignors to United States Gypsum Company, Chicago, Ill.

No Drawing. Filed Aug. 19, 1968, Ser. No. 753,786

Int. Cl. C04b 13/22; 13/24

U.S. Cl. 106-315

15 Claims

A process for producing an accelerator for a calcium sulfate plaster comprising the steps of grinding together

calcium sulfate dihydrate and sucrose at a temperature of up to about 145° F. until the surface area of the mixture is substantially increased, and heating the ground mixture under conditions which essentially preclude the formation of a dewpoint condition in the mixture to a final moisture content from about 6% to about 14% by weight.

3,573,948

METHODS OF MAKING AN IMAGE PLANE PLATE

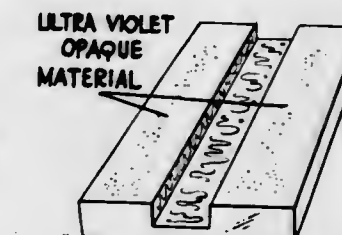
Milton S. Tarnopol, Brackenridge, Pa., assignor to PPG Industries, Inc., Pittsburgh, Pa.

Continuation-in-part of application Ser. No. 701,425, Jan. 29, 1968. This application Mar. 12, 1968, Ser. No. 712,533

Int. Cl. G03c 5/00; H05k 3/00

U.S. Cl. 117-5.5

3 Claims



The invention comprises improvements in making image-plane plates of glass stained on one surface thereof, in accordance with which improved resolution and/or the advantages associated with having a planar plate surface are obtained by using the screening action of tin oxide, which prevents metal staining of the glass.

3,573,949

PLATING STOPOFF PROCESS

Bernard L. Sharon, Williamsport, Pa., assignor to Avco Corporation, Williamsport, Pa.

Filed Apr. 1, 1969, Ser. No. 811,936

Int. Cl. C23b 5/00

U.S. Cl. 117-5.5

8 Claims

This invention relates to an improved plating stopoff process for selectively masking areas in which plating is not desired and which results in a distinct separation of plated and non-plated surface areas.

3,573,950

PROTECTIVE COATING OF GLASS SURFACE

Joseph J. Domicone, Horseheads, N.Y., assignor to Corning Glass Works, Corning, N.Y.

No Drawing. Filed Sept. 27, 1968, Ser. No. 763,367

Int. Cl. C03c 17/28; 15/02

U.S. Cl. 117-6

6 Claims

A method of preserving the wettability of a glass surface by treating the glass with an aqueous solution of gluconic acid.

3,573,951

PREPARATION OF SYNTHETIC FILM MATERIALS

Terence Arnold Abbott, Basil R. Shephard, David Rankine Kennedy, and Margaret Loudon Clachan, Brantham, Manningtree, Essex, England, assignors to Bexford Limited, Brantham, Manningtree, Essex, England

No Drawing. Continuation-in-part of application Ser. No. 511,980, Dec. 6, 1965, now Patent No. 3,506,445. This application Sept. 22, 1966, Ser. No. 581,182

Claims priority, application Great Britain, Dec. 9, 1964, 50,118/64

The portion of the term of the patent subsequent to

Apr. 14, 1967, has been disclaimed

Int. Cl. G03c 1/80; B29d 7/24

U.S. Cl. 117-7

2 Claims

A process for producing film base material consisting of biaxially orientated and heatset polyethylene terephthalate

having a superimposed layer consisting of homopolymers of vinyl halogenoacetate and vinyl cyanooacetate or copolymers thereof with unsaturated carboxylic acids, vinyl acetate or vinyl alcohol wherein the superimposed layer may be applied before or after orientation.

3,573,952 PROCESS FOR IMPARTING OIL REPELLENCY TO SUEDE LEATHER

Thomas W. Berger, Roseville, Minn., assignor to Minnesota Mining and Manufacturing Company, St. Paul, Minn.

No Drawing. Filed Oct. 21, 1968, Ser. No. 769,358
Int. Cl. B44d 1/094, 1/32

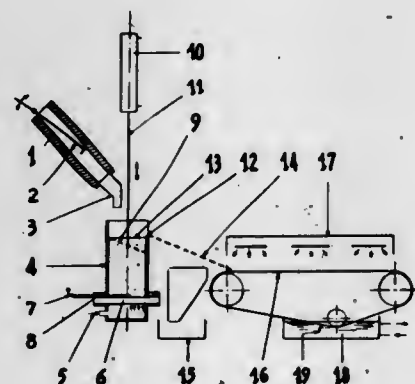
U.S. Cl. 117—16 6 Claims
A process for imparting oil repellency to the surface of suede leather which comprises adding to said suede leather during the dry tumbling thereof a fluorochemical in particulate form as a dry power or as suspended or emulsified particles in water, the amount of added water not exceeding about 7 weight percent of the total suede leather weight, said fluorochemical being capable of imparting oil repellency to leather and having a melting point below 200° C., and tumbling said leather until said fluorochemical is uniformly distributed over the suede surface.

3,573,953 PROCESS AND APPARATUS FOR COATING SMALL OBJECTS

Jean Michel Lulan, Lyon, France, assignor to Rhone-Poulenc S.A.

Filed Sept. 8, 1966, Ser. No. 577,960
Claims priority, application France, Sept. 15, 1965, 31,541

Int. Cl. B44d 1/095 10 Claims
U.S. Cl. 117—21



Heated articles are passed into a bed of fluidized plastic material having a dense zone and a less dense zone. The articles contact an upper more dense zone first and a lower less dense zone thereafter, wherein they are coated with the plastic material.

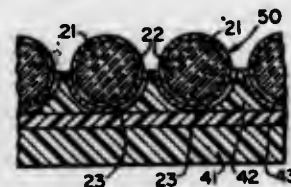
3,573,954 REFLEX-REFLECTORS AND METHOD FOR THE MANUFACTURE THEREOF

Tadashi Yamamoto, Kyoto, Japan, assignor of fractional part interest to Nihon Koken Co., Ltd., Ogawa Chiyo-kawa-cho, Kameoka, Kyoto, Japan

Filed July 1, 1968, Ser. No. 741,399
Claims priority, application Japan, July 5, 1967, 42/43,193; Oct. 18, 1967, 42/67,134

Int. Cl. B44c 1/08 4 Claims
U.S. Cl. 117—27
A method for the manufacture of microspherical lens elements for use in reflex-reflecting devices. Glass microspheres are tumbled in a rotating drum, sprayed with synthetic resin solution and cured to form the lens elements.

The lens elements are next coated with reflective plating. The reflex-reflecting device is completed by preparing a substrate with a bonding layer, depositing the lens elements on the substrate, removing the reflective metal plating from the portion of the lens elements projecting from the substrate and finally coating the entire surface of the substrate and lens element assembly with a transparent synthetic resin to form a flat surface.



ing from the portion of the lens elements projecting from the substrate and finally coating the entire surface of the substrate and lens element assembly with a transparent synthetic resin to form a flat surface.

3,573,955 METHOD OF MAKING A CATHODE-RAY TUBE

Johannes de Gier and Reinhard Charles Willem Elases, Emmasingel, Eindhoven, Netherlands, assignors to U.S. Philips Corporation, New York, N.Y.

Filed Apr. 15, 1966, Ser. No. 542,967
Claims priority, application Netherlands, Apr. 17, 1965, 6504936

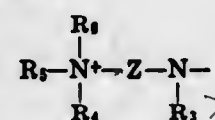
Int. Cl. H01J 31/20 5 Claims
U.S. Cl. 117—33.5
Discoloration of glass in window portion of cathode-ray tube due to high energy electron bombardment is prevented by providing a thin transparent layer free of easily reducible metal ions between the glass and the superposed luminescent screen.

3,573,956 OPTICAL BRIGHTENING OF POLY-ACRYLONITRILE FIBERS

Heinrich Hausermann, Riehen, and Eduard Troxler, Basel, Switzerland, assignors to Geigy Chemical Corporation, Ardsley, N.Y.

No Drawing. Original application July 23, 1968, Ser. No. 746,746, now Patent No. 3,518,266, dated June 30, 1970. Divided and this application Aug. 25, 1969, Ser. No. 870,847

Int. Cl. C09k 1/02; D06f 3/12 7 Claims
U.S. Cl. 117—33.5
Methods of optically brightening polyacrylonitrile fibers by applying from about 0.001 to about 0.5% calculated on the weight of the fibers quaternary 3-aryl-7-[triazinyl-(2)-amino]-coumarin salts in which the carbon atom in 4-position in the triazinyl nucleus is substituted by a lower alkyl group, an optionally substituted lower alkoxy or lower alkylthio group, or an unsubstituted or organically substituted amino group, and the carbon atom in 6-position in the triazinyl nucleus is substituted by the grouping

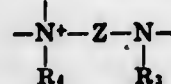


wherein

Z represents an alkylene or oxa-alkylene bridge;
R₂ represents hydrogen or a lower alkyl or alkenyl group;

R₄, R₅ and R₆ represent certain organic substituents or

R₄ and R₅ together with the nitrogen atom represent certain heterocyclic radicals, or the grouping



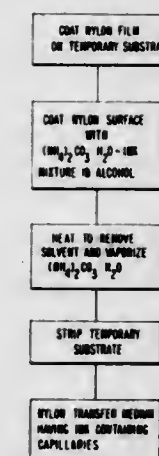
may represent a piperazinium radical, and which novel coumarins are useful for protecting foodstuffs.

3,573,957 PROCESS FOR PREPARING POROUS INK CONTAINING TRANSFER MEDIUM

Hugh T. Findlay and Roszell Mack, Jr., Lexington, Ky., assignors to International Business Machines Corporation, Armonk, N.Y.

Filed Aug. 5, 1968, Ser. No. 750,317
Int. Cl. B41m 5/10

U.S. Cl. 117—36.1 2 Claims



A porous, ink containing transfer medium is prepared by coating the surface of a polymer film, such as a polyamide, with a pore forming agent, such as ammonium bicarbonate, contained in a solvent such as ethanol, which is at least a partial solvent for the polymer film, to impregnate a portion of the pore forming agent into the surface of the polymer film. The solvent is removed and the film is heated to cause the pore forming agent to vaporize and form an open pored capillary structure in the surface of the film. The marking material can be incorporated either with the pore forming agent or after the open pored capillary structure has been formed.

3,573,958 HEAT SENSITIVE RECORDING SHEET

Francis E. Small, Nashua, N.H., (12600 Morrow NE, Albuquerque, N. Mex. 87112)

No Drawing. Filed May 31, 1968, Ser. No. 733,260
Int. Cl. B41m 5/18, 5/26

U.S. Cl. 117—36.8 7 Claims
A heat marking process using a novel heat sensitive recording sheet. The recording sheet comprises a substrate impregnated or coated with a heat sensitive composition of an indicator material, preferably ninhydrin or a derivative of ninhydrin, and an adduct of an amine ligand and an acceptor molecule of a halide or an organometallic halide of a member selected from the group consisting of germanium, tin, lead, and silicon; said adduct being stable at room temperature and dissociating at elevated temperatures, preferably temperatures in excess of 50° C., and most preferably, within the temperature range of 50° C. to 150° C. A record is formed by selective heating in a desired pattern to dissociate the adduct and liberate the amine for reaction with the indicator material. The recording sheet is more stable than prior art all organic recording sheets both prior to and subsequent to recording and forms deeper colored marks of high intensity.

3,573,959 PROCESS FOR MOISTURE-PROOFING METALS

Marnell A. Segura, Edwin E. Sale, and John C. Winkler, Baton Rouge, La., assignors to Esso Research and Engineering Company

No Drawing. Filed Feb. 5, 1969, Ser. No. 796,918
Int. Cl. B44d 1/06, 1/46

U.S. Cl. 117—37 17 Claims
A process for rendering metal surfaces water repellent, especially particulate metals and porous metal briquettes

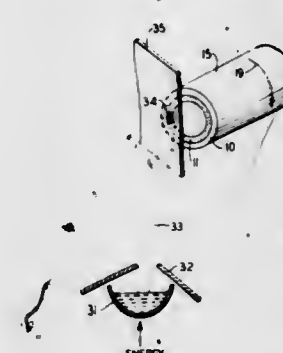
or similar aggregate structures, including, particularly, chemically active ferrous metals as resultant from direct iron ore reduction processes. Such briquettes or powders, while hot, are immersed, dripped, sprayed, or otherwise contacted with admixtures of certain kinds of olefins, contained in critical concentrations within the admixture. Suitably, the olefin admixture contains polyenes and dienes, preferably cyclopolyenes and cycloienes. The briquettes or powders are contacted with the olefin admixtures ranging from about 300° F. to about 700° F., or higher, and more particularly at from about 400° F. to about 600° F., at times sufficient to induce penetration of the olefins into the pores and crevices of the metallic surfaces. The contact time and surface temperature of the metal are thus controlled, and the temperature of the olefinic mixture is not permitted to rise to more than about 300° F. The olefins penetrate into the capillaries and crevices of the metal particles, even when the particles have been compacted into dense masses such as briquettes, sufficient when cured to produce discontinuous hydrophobic resinous deposits which render both outer and inner metal surfaces water repellent.

3,573,960 TORSIONAL MODE ELASTIC WAVE TRANSDUCERS

Robert S. Duncan, Winston-Salem, N.C., assignor to Bell Telephone Laboratories, Incorporated, Murray Hill and Berkeley Heights, N.J.

Filed Dec. 19, 1968, Ser. No. 785,268
Int. Cl. B05c 1/16, 3/20

U.S. Cl. 117—38 4 Claims



A method of forming torsional mode elastic wave transducers by evaporating or otherwise depositing piezoelectric material on an end surface of a delay line at an angle to this surface while the line is rotating. The material forms a ring, with the piezoelectric polarization and direction of shear motion circumferential to said ring.

3,573,961 METHOD FOR MAKING REFRACTORY OXIDE-COATED MATERIALS

Houston Terry Hawkins, Seneca, S.C., and Donald L. Schmidt, Dayton, Ohio, assignors to the United States of America as represented by the Secretary of the Air Force

No Drawing. Original application Dec. 2, 1964, Ser. No. 415,522. Divided and this application June 28, 1968, Ser. No. 760,369

Int. Cl. B44d 5/12 14 Claims

U.S. Cl. 117—47
A method for manufacturing oxide-treated carbonaceous material is provided whereby a carbonaceous fibrous base is immersed in a silica solution, providing a silica coating on the base, which upon drying forms a continuous film. The resulting product is particularly useful in the preparation of composite materials in the form of fiber-reinforced plastic laminates or filament wound fiber-plastic combinations.

3,573,962

METHOD FOR THE DRY LUBRICATION OF MECHANICAL COMPONENTS

Bernard Blampin, Chilly-Mazarin, France, assignor to Electricite de France (Service National), Paris, France
No Drawing. Filed Oct. 24, 1968, Ser. No. 770,421
Claims priority, application France, Nov. 22, 1967, 129,190

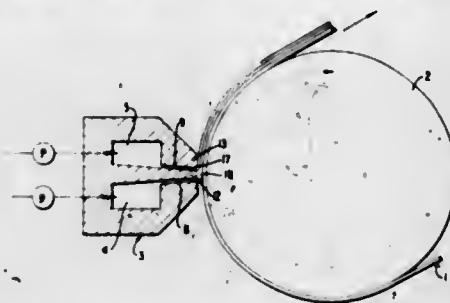
Int. Cl. F16c 33/04, 33/16

U.S. Cl. 117—49

5 Claims

A method for the dry lubrication of mechanical components in the hot state and in a gaseous atmosphere when friction forces are established between said components. The method consists in the successive steps of depositing an adherent coating of calcium fluoride on the friction surface of one of the components considered, in depositing a hardness-increasing coating made up of a similarly adherent substance on the friction surface of the component which is intended to cooperate with the first and in then applying graphite to at least one of said two friction surfaces.

ond layer greater than that of a first layer when two or more coating compositions pass through a doctor channel,



the coating compositions maintaining the relation of superimposed layers.

3,573,966

TABLET COATING METHOD

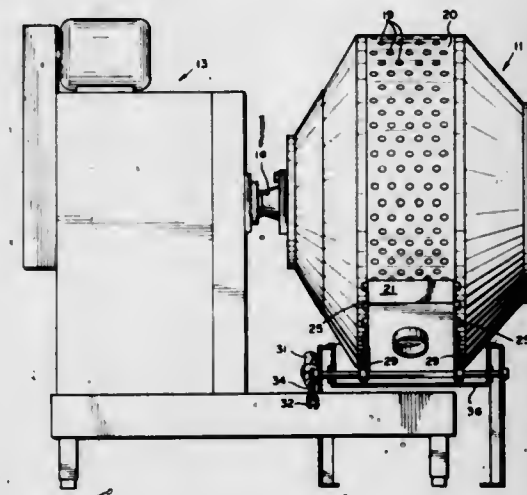
Van B. Hostetter, Indianapolis, Ind., assignor to Eli Lilly and Company, Indianapolis, Ind.

Continuation of application Ser. No. 708,261, Feb. 26, 1968. This application Jan. 15, 1970, Ser. No. 3,213

Int. Cl. B05c 3/04

U.S. Cl. 117—100

2 Claims



A tablet coating method wherein apparatus is provided having a vented area about the periphery of a rotary tumbling drum. Exhaust means is removably positioned adjacent a portion of the drum's vented section in a manner which draws air and the coating material through the bed of tumbling tablets.

3,573,964

PROCESS FOR PREPARING FABRIC-VINYL RESIN LAMINATES

Peter William Jones, Loughborough, England, assignor to Fisons Industrial Chemicals Limited, Loughborough, England

Filed June 11, 1968, Ser. No. 736,199

Int. Cl. B29c 13/04; B32b 5/18

U.S. Cl. 117—76

14 Claims

Coating of plastic materials are applied to fabrics by applying at least one coating of plastisol to the surface of an internally heated rotating cylinder wherein the surface possesses the property of release with respect to the plastisol, applying the plastisol to a fabric just prior to the gelling of the plastisol to form a laminate, pressing the laminate against the cylinder, removing the laminate from cylinder and fusing the plastisol.

3,573,965

MULTILAYER COATING METHOD

Mamoru Ishiwata, Yosuke Uchida, and Yoskiaki Nagai, Kanagawa, Japan, assignors to Fuji Shashin Film Kabushiki Kaisha, Minami Ashigara-machi, Ashigara-Kamigun, Kanagawa, Japan

Filed Dec. 5, 1967, Ser. No. 688,059

Claims priority, application Japan, Dec. 7, 1966, 41/80,243

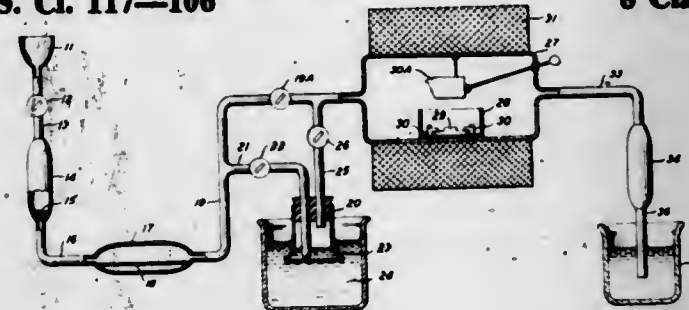
Int. Cl. B44d 1/12; G03c 1/74

U.S. Cl. 117—83

1 Claim

This invention relates to a multilayer coating method which is characterized in making the viscosity of a sec-

The controlled growth of a crystalline material upon a seed crystal is effected by means of the vapor-liquid-solid crystal growth mechanism, the seed crystal being physically isolated from the vapor source by immersion thereof in a liquid solution supersaturated with respect to the crystalline material.



3,573,968

PROCESS FOR COATING SOLID SUBSTRATES WITH PARA-XYLYLENE POLYMERS

William E. Loeb, Martinsville, and Harold B. Robinson, Jr., Chatham Township, N.J., assignors to Union Carbide Corporation

No Drawing. Filed Jan. 22, 1968, Ser. No. 699,316

Int. Cl. C23c 13/04

U.S. Cl. 111—106

8 Claims

Para-xylylene polymer coated substrates exhibiting strong polymer-substrate interfacial bonds are obtained by deposition coating the substrates to a para-xylylene polymer thickness of up to about 5 microns and thereafter maintaining the coated substrate at a temperature of from 100 to 200° C. for at least 0.25 hour.

3,573,969

METHOD FOR SURFACE NITRIDING BORON FILAMENTS

José Camahort, Millbrae, and Mario P. Gomez, Sunnyvale, Calif., assignors to Lockheed Aircraft Corporation, Burbank, Calif.

Filed Aug. 19, 1968, Ser. No. 753,589

Int. Cl. C23f 7/00

U.S. Cl. 117—106

13 Claims

A method for surface nitriding boron filaments to make the filaments useful as reinforcement agents in composite materials. The method involves initially forming a liquid boron oxide coating on the filament, for example, by heating the filament at temperatures of from about 560° C. to 800° C. in an oxidizing atmosphere and then converting the liquid oxide coating to a solid, continuous boron nitride coating by, for example, heating the filament at temperatures of from about 600° C. to 1100° C. in a nitrogen-containing atmosphere.

3,573,970

METHOD FOR DEPOSITING O₃ FILMS

Robert C. Langley, Millington, N.J., assignor to Engelhard Minerals & Chemicals Corporation, Newark, N.J.

No Drawing. Filed Apr. 16, 1969, Ser. No. 816,812

Int. Cl. C03c 17/06; C23c 3/04

U.S. Cl. 117—119

12 Claims

Osmium tetroxide-olefin complex compounds soluble in organic film-forming media are used for preparing osmium films.

3,573,971

PROCESS OF MAKING PERMANENT-PRESS FABRICS AND GARMENTS

Sidney Cohen, Hillsdale, Thaddeus A. Gulakowski, Ridgefield, and Phillip Adams, Murray Hill, N.J., assignors to Millmaster Onyx Corporation, New York, N.Y.

No Drawing. Continuation of application Ser. No. 688,327, Dec. 6, 1967. This application Nov. 14, 1969, Ser. No. 877,017

Int. Cl. D06m 15/54

U.S. Cl. 117—139.5

1 Claim

A process for treating fabrics to provide permanent-press pleats, creases, etc., while maintaining soft "hand" and good color fastness, which comprises applying a specific treating composition to the fabric, then pressing in the pleats, creases or the like, sewing the fabric into a garment or the like when so desired, and then curing the composition in situ. The specific composition is formed by reacting an aqueous formaldehyde-urea solution with urea under alkaline conditions, heating the mixture to a predetermined temperature, adding an alcohol at acidic pH, heating again to a predetermined temperature, neutralizing the pH of the mixture, stripping off the volatile matter, and then adding a loweralkylcarbamate to the residue and reacting further at an alkaline pH at a predetermined temperature for a period sufficient to cause the reaction to go to completion. The essential step in this process is the addition of the loweralkylcarbamates as

the last step. The term "loweralkylcarbamate" includes not only unsubstituted alkyls but such substituted lower alkyls as methoxy and hydroxyloweralkyl.

3,573,972

GLAZE COMPOSITIONS AND METHOD

William H. McNeely and William P. Fairchild, San Diego, and Austin R. Hunter, La Mesa, Calif., assignors to Kelco Company, San Diego, Calif.

No Drawing. Continuation of application Ser. No. 547,748, May 5, 1966, which is a continuation-in-part of application Ser. No. 416,147, Dec. 4, 1964, which in turn is a continuation-in-part of application Ser. No. 11,988, Mar. 1, 1960. This application Jan. 8, 1970, Ser. No. 3,555

Int. Cl. C03c 17/00

U.S. Cl. 117—169

10 Claims

A method of glazing in which an aqueous glaze mixture containing a small effective quantity of a Xanthomonas hydrophilic colloid is applied as a coating to a substrate material which is then fired to form a glazed surface. The quantity of Xanthomonas hydrophilic colloid present in the glaze mixture is effective to increase the cling of the mixture to the substrate material while, at the same time, providing good spreadability of the glaze mixture. After application of the coating of aqueous glaze material to the substrate material, the coated substrate is fired.

3,573,973

HIGH SPEED ADDITIVE CIRCUIT PROCESS

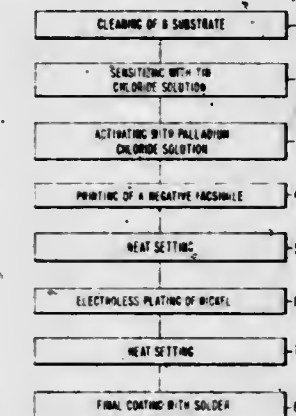
John S. Drotar, Endicott, N.Y., Arden A. Parker, Hightstown, N.J., and Keith A. Snyder, Vestal, N.Y., assignors to International Business Machines Corporation, Armonk, N.Y.

Filed Nov. 13, 1967, Ser. No. 682,373

Int. Cl. H05k 1/00

U.S. Cl. 117—212

5 Claims



A high speed additive circuit process for manufacture of circuit lines upon a polyester or polyimide substrate, including through-holes therein, comprising the steps of cleaning, sensitizing, activating, printing a negative facsimile, of the final desired pattern over the activated surface, heat setting, electroless nickel plating, curing, and final conductive coating by flow soldering. Only one step may exceed one minute in time. Temperatures and time at temperature details are included. Conductive lines as fine as 2 mils wide on 4 mil centers may be made by this process.

3,573,974

METHOD OF FABRICATING OHMIC CONTACTS AND CONDUCTIVE CONNECTORS

Paul P. Castrucci, Poughkeepsie, and Edward G. Grochowski, Wappingers Falls, N.Y., assignors to International Business Machines Corporation, Armonk, N.Y.

Filed Mar. 21, 1968, Ser. No. 714,840

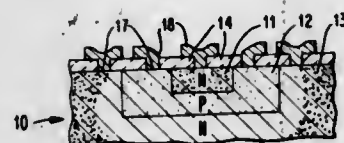
Int. Cl. C23c 11/02; H01l 7/00

U.S. Cl. 117—212

9 Claims

A method for forming aluminum ohmic contacts and conductive connectors on semiconductor devices having

silicon dioxide passivating masks covering portions of a semiconductor substrate. The aluminum contacts and connectors are formed by the disproportionation of aluminum mono-halide vapor in the presence of the silicon dioxide



masked substrate. The aluminum formed by the disproportionation is deposited as a layer over the masked substrate. Then, portions of the aluminum layer are selectively removed to leave a pattern of ohmic contacts and conductive connectors.

3,573,975

PHOTOCHEMICAL FABRICATION PROCESS

Vir A. Dhaka and Edwin R. Clark, Poughkeepsie, and Arnold Pinck, Wappingers Falls, N.Y., assignors to International Business Machines Corporation, Armonk, N.Y.

No Drawing. Filed July 10, 1968, Ser. No. 743,596

Int. Cl. G03c 5/00

U.S. Cl. 117-212

18 Claims

In a photochemical fabrication process wherein a photoresist layer is image-wise exposed by contact exposure through a mask, the improvement of providing a liquid interface between the photoresist layer and mask prior and during exposure.

3,573,976

METHOD OF MAKING COAXIAL CABLE

Jerome J. Duane, Lincoln, Mass., assignor to United-Carr Incorporated, Boston, Mass.

No Drawing. Filed Nov. 17, 1967, Ser. No. 683,804

Int. Cl. B44d 1/18

U.S. Cl. 117-217

2 Claims

This invention is directed at a coaxial cable, and particularly, at a coaxial cable using a syntactic foam containing glass, silica or ceramic microspheres as the dielectric medium between the central and outer conductors.

3,573,977

PROCESS FOR GLASS COATING AN ION

ACCELERATOR GRID

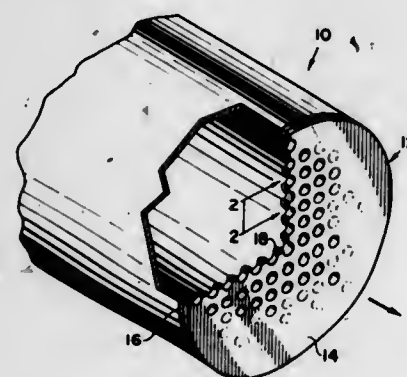
Bruce A. Banks, North Olmsted, Ohio, assignor to the United States of America as represented by the Administrator of the National Aeronautics and Space Administration

Filed Sept. 19, 1968, Ser. No. 760,928

Int. Cl. C23d 5/04, 7/00

U.S. Cl. 117-224

5 Claims



Minimizing bubbles in a fused glass coating on a perforated plate forming the single grid of an ion thruster

celerator system. A slurry coated grid is first heated in a helium atmosphere which is subsequently changed to argon so that entrapped helium diffuses out of the glass.

3,573,978

METHOD OF PRODUCING LAYERS OF THE INTER-METALLIC SUPERCONDUCTING COMPOUND NIOBIUM TIN (Nb₃Sn) ON A CARRIER

Kyongmin Kim, Fairview, Halifax N.S., Canada, and Günther Ziegler, Erlangen, Germany, assignors to Siemens Aktiengesellschaft, Berlin, Germany

Filed Aug. 2, 1968, Ser. No. 753,016

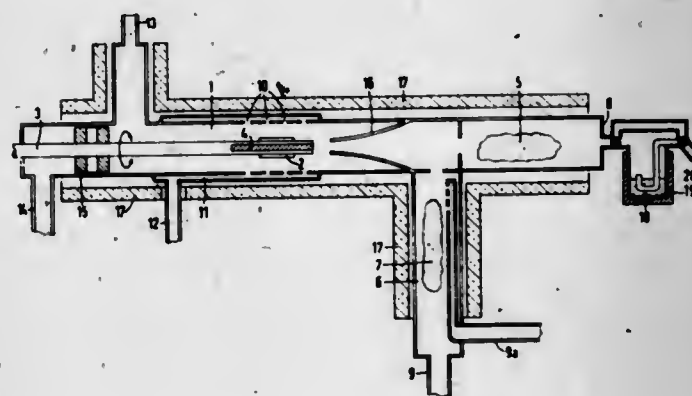
Claims priority, application Germany, Aug. 4, 1967,

P 16 21 345.9

Int. Cl. C23c 11/00

U.S. Cl. 117-227

9 Claims



Described is a method of producing layers of the inter-metallic superconducting compound niobium tin (Nb₃Sn) upon a carrier. The method is characterized in that chlorine gas is passed across heated niobium to produce gaseous niobium chloride. Separately therefrom bromine gas is passed across heated tin to produce tin bromide. Subsequently the halogens are mixed and reduced by hydrogen upon a heated carrier in a reaction vessel.

3,573,979

METHOD OF MANUFACTURING FLOW-DETECTING GRANULATED COLORING MAGNETIC PARTICLES

Kazuo Honjo, 7-17, 4-chome, Koshienguchi,

Nishinomiya, Hyogo, Japan

Filed May 8, 1968, Ser. No. 727,501

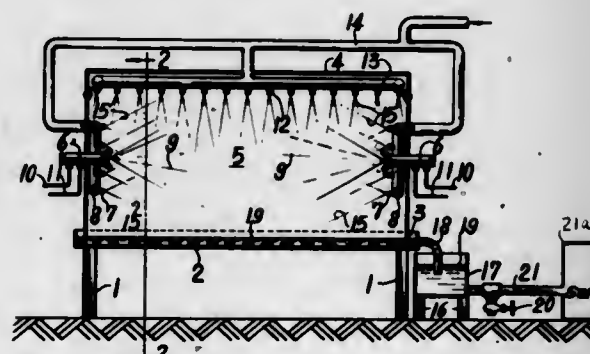
Claims priority, application Japan, July 1, 1967,

42/42,496

Int. Cl. H01t 1/26; B44d 1/08

U.S. Cl. 117-234

6 Claims



The method of manufacturing flow-detecting granulated colored magnetic particles comprising the steps of adding

iron dust, a coloring agent, and a binder to a solvent. These ingredients are blended to make a mixed liquid material and said mixed liquid material with a separation agent therein is sprayed with the iron dust. Then the mixed liquid material is separated into particles of iron dust coated with the coloring agent so as to produce colored magnetic particles.

3,573,980

METHOD OF MAKING MAGNETIC PARTICLES AND RECORDING TAPE

Willis D. Haller, St. Paul, and Raymond M. Colline, Fridley, Minn., assignors to Minnesota Mining and Manufacturing Company, St. Paul, Minn.

Filed Feb. 19, 1968, Ser. No. 706,401

Int. Cl. B44d 1/18

U.S. Cl. 117-238

7 Claims

Method of making magnetizable acicular gamma-Fe₂O₃ particles modified with small amounts of cobalt oxide, which particles are useful for making magnetic recording tape of high coercivity affording superior ability to store high frequency information. Even higher coercivity may be attained by controlling the heating steps in making the novel particles to provide up to 20% FeO by weight of the total iron oxide.

3,573,981

METHOD AND APPARATUS FOR INDUCING UNIAXIAL ANISOTROPY IN MAGNETIC FILM THEREBY, AND MEMORY USING THE FILM

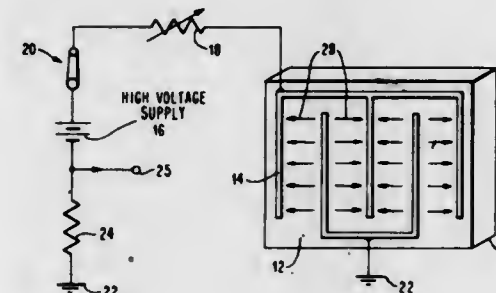
Kie Y. Ahn, Bedford, and Joseph M. Viggiano, Yonkers, N.Y., assignors to International Business Machines Corporation, Armonk, N.Y.

Filed Dec. 14, 1967, Ser. No. 690,589

Int. Cl. C23c 13/02, 13/04

U.S. Cl. 117-240

15 Claims



This disclosure provides a magnetic film with induced uniaxial anisotropy, i.e., a film with an easy axis and a hard axis for magnetization. The practice of the disclosure includes deposition of partially ionized components of a magnetic material onto a heated substrate in the presence of an applied electric field adjacent to and contiguous with the surface of the substrate. The easy axis of the induced uniaxial anisotropy in the deposited magnetic film is in the direction of the applied electric field in the film. The magnitudes of the temperature of the surface of the substrate and of the electric field control both the magnitude and direction of the uniaxial anisotropy in the film. The degree of ionization of the components of the film during vapor transport to the surface of the substrate establishes another control of the resultant induced uniaxial anisotropy in the film. Exemplary magnetic films for the practice of this disclosure are Ni-Fe of 81/19 ratio of the atomic components Ni and Fe and films of rare earth compounds and alloys, e.g., EuO compound and Eu-Gd alloys.

3,573,982
CONTINUOUS DIFFUSION APPARATUS AND PROCESS

Harold F. Silver, Denver, Colo., assignor to CF & I Engineers, Inc., Denver, Colo.

Continuation of application Ser. No. 490,526, Sept. 27, 1965. This application July 11, 1969, Ser. No. 845,672

Int. Cl. C13d 1/10, 1/12

U.S. Cl. 127-5

15 Claims



A continuous diffusion process and apparatus, comprising an elongated tank inclined to the horizontal and closed to the atmosphere in liquid-confining relation throughout its circumferential and lengthwise extent thereby establishing a treatment zone of substantial vertical extent in which newly introduced pulp is passed countercurrent to a flow of solution which becomes progressively enriched by contact with the pulp, said apparatus having a plurality of helical flight conveyors with lapping blades arranged to confine and impel the pulp with its solids content submerged throughout a progressive movement from the lower end to the upper end of the liquid-confining area and having means associated with a pulp feed inlet at its lower end for force feeding an entering pulp feed downwardly into and along a submerged course at the lower end of the tank between an end flight of one said conveyor and a next forward conveyor flight so as to maintain the submerged course within a flow of enriched solution passing to a discharge outlet at the lower end of the tank and thereby preventing emergence of pulp solids from associated solution during said movement.

3,573,983
ULTRASONIC IMPACT CLEANERS AND METHODS OF CLEANING

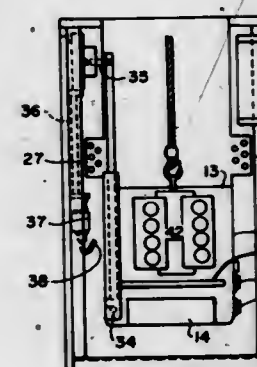
John N. Antonevich, Jamestown, N.Y., assignor to Blackstone Corporation

Continuation-in-part of application Ser. No. 730,261, May 20, 1968. This application June 1, 1970, Ser. No. 42,036

Int. Cl. B08b 7/02

U.S. Cl. 134-1

7 Claims



A method for cleaning by subjecting articles to be cleaned simultaneously to impact and ultrasonically agitated solvent. An apparatus is provided having a wash tank containing solvent, means in the tank ultrasonically agitating the solvent therein and means in the tank periodically impacting the articles to be cleaned while the solvent is ultrasonically agitated.

3,573,984

ALKALINE DESMUTTING COMPOSITION FOR FERROUS METALS

Dillip G. Shah, Wolcott, Conn., assignor to MacDermid Incorporated, Waterbury, Conn.

No Drawing. Filed Apr. 17, 1968, Ser. No. 721,946
Int. Cl. C23g 1/20

U.S. Cl. 134-2

5 Claims

An aqueous alkaline ferricyanide composition is disclosed for removing smut formed on the surface of ferrous metals by common surface treatments such as pickling, cleaning, descaling and etching.

3,573,985

METHOD FOR CLEANING PIPELINES

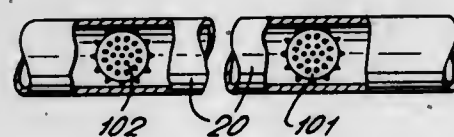
Ronald W. Schultz, Lodgepole, Alberta Canada assignor to Western Decalta Petroleum Limited Calgary Alberta Canada

Filed Aug. 12, 1968, Ser. No. 751,844
Claims priority, application Canada, Aug. 15, 1967, 997,884

Int. Cl. B08b 9/04

U.S. Cl. 134-8

10 Claims



Procedure for cleaning pipelines which includes forcing a plurality of pipeline cleaning "pig" balls through the pipeline. Pipeline cleaning kit comprising a first lead "pig" ball and a second follower "pig" ball. The "pig" balls have a generally spherical main body formed of a resiliently deformable material which is provided with a plurality of discrete, discontinuous and laterally spaced apart protuberances upstanding from the surface thereof. In each case the protuberances have a hardness greater than that of the main body. In addition, the second or follower "pig" ball has a main body formed of a resiliently deformable material having a hardness greater than the hardness of the main body of the first or leading "pig" ball. The "pig" balls preferably are formed of natural or synthetic rubber, with the protuberances having a tip formed of a hard metallic substance such as tungsten carbide.

3,573,986

HEAT ACTIVATED CELL

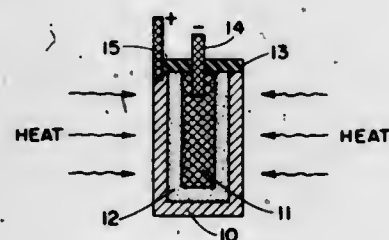
Jacob Greenberg, Pepper Pike, Ohio, assignor to the United States of America as represented by the Administrator of the National Aeronautics and Space Administration

Filed Dec. 30, 1968, Ser. No. 787,911

Int. Cl. H01m 21/00, 17/06

U.S. Cl. 136-83

11 Claims



A heat activated electromotive force (EMF) cell having an anode formed of aluminum and a cathode comprising an oxidizing material such as sulfur. The cathode material is supported in a container or in a matrix such as porous carbon. An aluminum salt layer electrolyte such as AlCl₃ separates the anode from the cathode. To minimize vaporization of the aluminum salt, an alkali

halide salt may be mixed therewith. The cell may be operated at temperatures up to a point where either the cathode material or the electrolyte is molten.

3,573,987

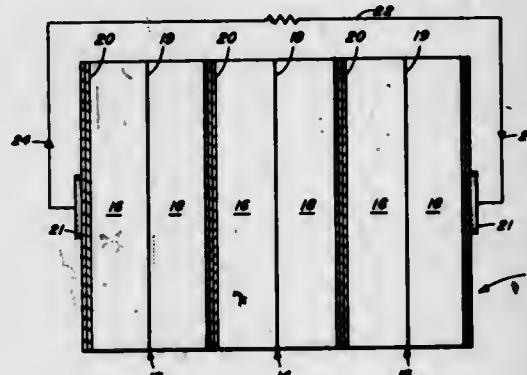
ELECTROCHEMICAL ELECTRIC POWER GENERATORMilton A. Knight, Centerville, Va.
(P.O. Box 1288, Kissimmee, Fla. 32741)

Filed July 28, 1969, Ser. No. 845,372

Int. Cl. H01m 21/00

U.S. Cl. 136-83

12 Claims



An electrochemical power generator wherein each electrode is made of a liquid, the electrodes of each cell being separated by an ion exchange membrane, and the cells being separated by conducting current collectors.

3,573,988

ELECTRODE COMPRISING NON-NOBLE METAL DISULFIDES OR PHOSPHIDES AND ELECTROCHEMICAL CELL UTILIZING SAME

Douglas W. McKee, Burnt Hills, and Mun S. Pak, Stormville, N.Y., assignors to General Electric Company

Filed Dec. 23, 1968, Ser. No. 786,268

Int. Cl. H01m 13/00, 27/00

U.S. Cl. 136-86

5 Claims

An electrode is composed of particles of a metallic disulfide, a metallic phosphide, or such particles coated with a non-noble metal bonded together with a binder, and an electrical lead in electrical contact with the bonded particles. The metallic component of the disulfide or the phosphide is selected from the class consisting of molybdenum, tungsten, zirconium, niobium, hafnium, and tantalum. This electrode, which does not contain any noble metal catalyst, is particularly useful in electrochemical cells employing alkaline electrolytes.

3,573,989

METHOD OF MANUFACTURING GALVANIC BATTERIES

Clark C. Cleveland, Bennington, Vt., assignor to the United States of America as represented by the Secretary of the Navy

Continuation-in-part of application Ser. No. 119,258, June 21, 1961. This application Sept. 10, 1964, Ser. No. 395,988

Int. Cl. H01m 1/00, 17/00

U.S. Cl. 136-90

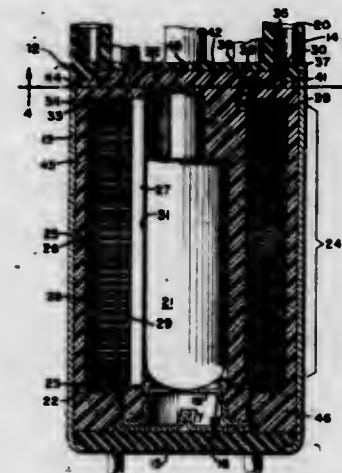
8 Claims

1. An improved method of manufacturing a spin-filled reserve energizer having an annular stack of voltage cells for surrounding an electrolyte carrying frangible ampule and partially encased by a molding compound and housing therefore comprising the steps of:

sealing with vinyl plastisol a plurality of conductive connecting tabs extending from a plurality of connectors at the point where said tabs extend through apertures in a plurality of contact receiving means carrying said connectors and mounted on one end casing of said energizer; and

thereafter forcing a molding compound through an opening in said one end casing and into intimate contact with said annular stack and said vinyl plastisol whereby said plastisol is of sufficient strength to pre-

electrolyte side in contact with a catalytically active layer including the steps of depositing a finely screened powder on a support by electrostatic projection to form the bar-



vent extrusion of said molding compound through the aperture in each of said contact receiving means when said molding compound is applied to said vinyl plastisol under pressure.

3,573,990

SEALED TYPE DRY CELL

Takashi Tsuchida, Kohel Hirukawa, Yukio Okajima, and Fumio Iguma, Shizuoka-ken, Japan, assignors to Fuji Denki Kagaku Kabushiki Kaisha, Tokyo, Japan

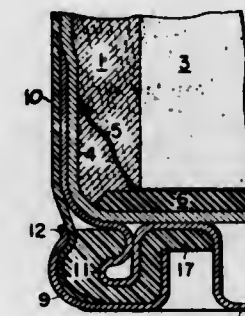
Filed Jan. 12, 1970, Ser. No. 2,054

Claims priority, application Japan, Jan. 23, 1969, 44/5,461

Int. Cl. H01m 21/06

U.S. Cl. 136-107

6 Claims



The structure of a battery dry cell includes a cup-shaped bottom member having an annular projection vertically projecting near its bottom circumference. The bottom member is fitted over a bottom surface of an anode zinc can. An annular gasket is fitted to the bottom member and a cavity in the gasket is fitted to the annular projection. A skirt portion of a plastic cylindrical jacket, which is bent along the gasket, is radially constricted against the gasket by means of a metal member.

3,573,991

PROCESS FOR THE PREPARATION OF THIN ELECTRODES FOR FUEL CELLS

Pierre Lenfant, Les Grandes, Pierre-Jean Bono, Massy, Alexis Tissier, Sainte-Genevieve-des-Bois, and Robert Chevet, Chilly-Mazarin, France, assignors to Compagnie Generale d'Electricite, Paris, France

Filed May 20, 1968, Ser. No. 730,547

Claims priority, application France, May 18, 1967, 106,891; May 25, 1967, 107,849; Dec. 26, 1967, 133,769

Int. Cl. B05b 5/02; B22f 7/00; H01m 27/04

U.S. Cl. 136-120

12 Claims

A process for the preparation of thin electrodes for fuel cells having at least one barrier layer situated on its

rier layer; subjecting the layer to compression and sintering treatments; and depositing the catalytically active layer by similar process.

3,573,992

METHOD OF FORMING AN ELECTRODE

Willard T. Grubb, Schenectady, and Robert A. Macur, Burnt Hills, N.Y., assignors to General Electric Company

Filed Aug. 29, 1968, Ser. No. 756,120

Int. Cl. H01m 13/00, 27/00

U.S. Cl. 136-120

6 Claims

Methods are described for forming electrodes by metallic deposition from a solution containing platinum, palladium and selected third metal onto a porous substrate having at least a non-noble metal coating. The metallic deposition is accomplished by substrate immersion, substrate dipping, or substrate immersion in which the substrate is connected to the positive terminal of a power supply. Such electrodes provide high performance anodes for electrochemical cells.

3,573,993

OXYGEN ELECTRODE COMPOSED OF MIXED OXIDES OF PRASEODYMIUM, CHROMIUM, NICKEL AND COBALT

Wilfried Pabst, Pittsburgh, Pa., and Gerd Sandstede, Frankfurt am Main, and Gerhard Walter, Steinbach, Taunus, Germany, assignors to Robert Bosch G.m.b.H., Stuttgart, Germany

Filed Dec. 4, 1968, Ser. No. 780,991

Claims priority, application Germany, Dec. 23, 1967, P 16 71 721.8

Int. Cl. H01m 13/00, 27/00

U.S. Cl. 136-120

9 Claims

Oxygen electrode suitable as cathode in fuel cells. Mixed oxides of praseodymium, chromium, nickel and/or cobalt are lodged in spaces formed on the surface of the solid electrode material and the electrical conductor of the electrode is made of heat resistant steel.

3,573,994

LIQUID PERMEABLE LIQUID ABSORBENT POROUS SHEET MATERIALS

Braham Rowley Field, Redditch, England, assignor to Alkaline Batteries Limited, Redditch, England

No Drawing. Filed Jan. 31, 1968, Ser. No. 701,856

Int. Cl. H01m 3/02; B32b 5/16

U.S. Cl. 136-145

5 Claims

A material suitable for use in separators for the plates of alkaline storage batteries is made by sintering a felt containing about 90% fibre and 10% powder, of which about half the fibre is nylon staple and about half regen-

erated cellulose, and of which about a third of the powder is powdered nylon, the remainder being cellulose powder and inert filler powder.

3,573,995

SURFACE CONTACTING THERMOCOUPLE

Tsuneji Senbokujo, 23-17, Himonya 5-chome, Meguro-ku, Tokyo, Japan
Filed Apr. 10, 1968, Ser. No. 720,149
Claims priority, application Japan, Apr. 19, 1967, 42/24,476
Int. Cl. H01v 1/02

U.S. Cl. 136-221

6 Claims



A surface contacting thermocouple is comprised of thermocouple and a spring mechanism; the thermocouple comprises a curved outwardly projected thin band-like thermocouple wire supported by the spring mechanism, and is arranged to adhere the thermocouple closely to the surface whose temperature is to be measured.

3,573,996

SILICIDE COATINGS FOR REFRACTORY METALS

T. O. Paine, Deputy Administrator of the National Aeronautics and Space Administration, in respect to an invention of Ray T. Wimber, Bozeman, Mont., and Alvin R. Stetson, and Arthur G. Metcalfe, both of San Diego, Calif.

No Drawing. Filed Aug. 8, 1968, Ser. No. 751,061
Int. Cl. C23c 9/00, 11/08

U.S. Cl. 148-6

20 Claims

A silicide coating process in which a modifier alloy is slurry applied and vacuum sintered onto a substrate preparatory to siliciding.

3,573,997

PROCESS FOR THE COATING OF METAL

Elmer H. Plaxton, Bloomfield Hills, Mich., assignor to Hooker Chemical Corporation, Niagara Falls, N.Y.
No Drawing. Continuation-in-part of applications Ser. No. 378,982 and Ser. No. 378,946, both filed June 29, 1964. This application Dec. 31, 1968, Ser. No. 789,005
Int. Cl. C23f 7/10, 7/14, 7/26

U.S. Cl. 148-6.16

7 Claims

A process for coating metal wherein a phosphate or oxalate conversion coating composition is applied to an aluminum, zinc or ferrous metal surface to form a substantially dry, uniform phosphate or oxalate conversion coating, a portion of which is water-soluble. An organic containing, reducing and/or esterifying fixing or immobilizing coating composition is then applied which reacts out the water-soluble portion of the conversion coating to produce water-insoluble phosphates or oxalates and form a substantially dry, uniform composite coating. A hexavalent chromium containing stabilizing or passivating composition is also applied, either as a separate stage or, preferably, by including the hexavalent chromium material in the fixing coating composition. Preferably, all of the coating materials are applied by "mist-on" type spray applications.

3,573,998
METHOD OF HEAT-TREATING TUNGSTEN-BASE ALLOYS

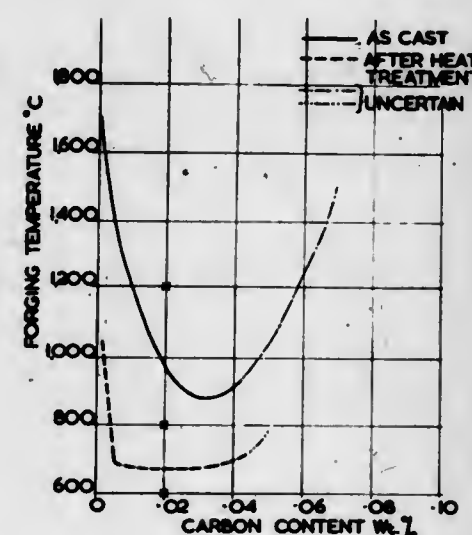
Robert Walter Broomfield, Sutton Coldfield, England, assignor to Imperial Metal Industries (Kynoch) Limited, Birmingham, England

Filed May 8, 1967, Ser. No. 636,835
Claims priority, application Great Britain, May 17, 1966, 21,818/66

Int. Cl. C21d 1/00; C22f 1/18

U.S. Cl. 148-11.5

5 Claims



A method of heat-treating tungsten-base alloys containing about 0.005 to about 0.0490 carbon and optionally molybdenum, tantalum, niobium and zirconium to render the alloy forgeable below 1100° C., in which the alloy is heated between 1700 and 1900° C. and cooled at a constant rate over a period of one hour to a temperature of 900° C.

3,573,999

MECHANICAL STRENGTH OF METALS

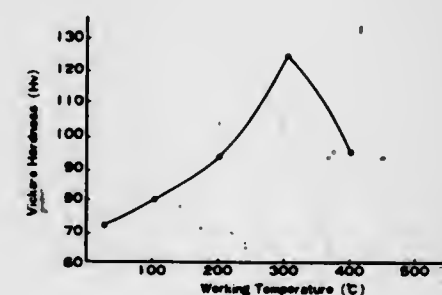
Isao Gokyu, Musashinoshi, Tokyo, Japan, assignor to Nippon Kokan Kabushiki Kaisha, Tokyo, Japan
Filed Oct. 26, 1966, Ser. No. 594,348

Claims priority, application Japan, Oct. 30, 1965, 40/66,312

Int. Cl. C21d 7/10

U.S. Cl. 148-12

5 Claims



A method for improving the mechanical and physical properties of alpha iron steel bar and rod articles by plastically twisting the articles without dimensional deformation between about 200° C. and about 400° C. The steel bar and rod articles are required to have interstitial solute atoms selected from the group consisting of carbon and nitrogen in an amount of at least 0.02% carbon and at least 0.008% nitrogen.

3,574,000
HIGH FLEXIBILITY STEEL WIRE AND METHOD OF TREATING SAME

Hans Gempel, Oberhausen-Sterkrade, Eckehard Foster, Oberhausen, and Wilfried Heinemann, Dinslaken, Germany, assignors to Firma Huttenwerk Oberhausen AG, Oberhausen, Germany

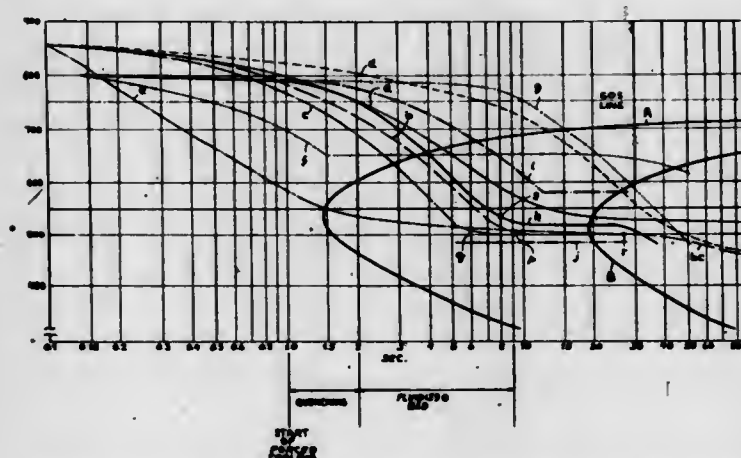
Continuation-in-part of applications Ser. No. 675,522, Oct. 16, 1967, and Ser. No. 750,642, Aug. 6, 1968. This application Feb. 17, 1969, Ser. No. 805,941

Claims priority, application Germany, Feb. 15, 1968, P 15 83 986.8

Int. Cl. C21d 1/62, 7/14, 9/57

U.S. Cl. 148-12

6 Claims



Steel wire coming hot from a rolling mill is rapidly cooled, preferably with the aid of a fluidized bed, to a temperature between about 500° and 550° where transformation of austenite to pearlite takes place, the final phase of this transformation taking place substantially isothermally. This wire, when drawn to a fraction of its original diameter, manifests a microcrystalline structure with distinct lamellate zones and has improved torsional and flexural capacity compared with lead-patented and air-patented wires.

3,574,001

HIGH CONDUCTIVITY COPPER ALLOYS

Elmery Ence, Hamden, Conn., assignor to Olin Mathieson Chemical Corporation

No Drawing. Continuation-in-part of application Ser. No. 581,715, Sept. 26, 1966. This application May 16, 1968, Ser. No. 729,501

Int. Cl. C22c 9/00

U.S. Cl. 148-32.5

5 Claims

New and improved copper base alloys combining high conductivity with good strength, with the composition consisting essentially of from 0.1 to 2.5% chromium, 0.01 to 0.5% phosphorus, from 0.001 to 0.25% boron and the balance essentially copper, with the chromium boron and phosphorus precipitated throughout the copper matrix in a fine, uniform dispersion.

3,574,002

STAINLESS STEEL HAVING IMPROVED CORROSION AND FATIGUE RESISTANCE

Howard Wayne Hayden, Jr., Suffern, N.Y., Robert Cameron Gibson, Cupsaw Lake, Ringwood, N.J., and Jere Hall Brophy, Suffern, N.Y., assignors to The International Nickel Company, Inc., New York, N.Y.

Continuation-in-part of application Ser. No. 638,519, May 15, 1967, which is a continuation-in-part of application Ser. No. 559,185, June 21, 1966. This application Aug. 1, 1968, Ser. No. 749,409

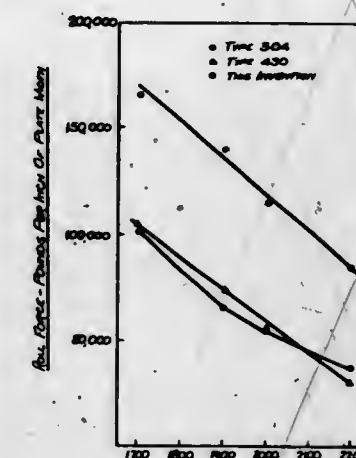
Int. Cl. C22c 39/14, 39/20

U.S. Cl. 148-37

19 Claims

Directed especially to readily workable stainless steels having a duplex, e.g., austenite-ferrite, microstructure containing about 18% to about 35%, e.g., about 26% chromium, about 2% to about 12%, e.g., about 6.5%,

nickel, up to about 1.5%, e.g., about 0.2%, titanium, up to about 1% vanadium, not more than about 0.08%,



e.g., up to about 0.05% carbon and the balance substantially iron.

3,574,003

METHOD OF TREATING SEMI-HARD

MAGNETIC ALLOYS

Tomisaburo Nara, Yukio Kiyotani, Mutsuo Tokuyoshi, and Huzio Hirabayashi, Tokyo, Japan, assignors to Nippon Telegraph and Telephone Public Corporation, Tokyo, Japan

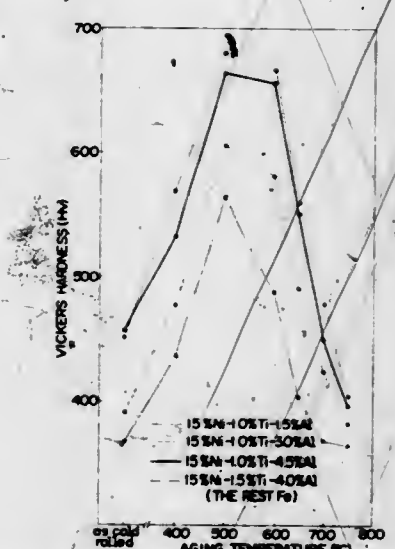
Filed Oct. 9, 1967, Ser. No. 673,714

Claims priority, application Japan, Oct. 14, 1966, 41/67,216; Mar. 10, 1967, 42/14,729

Int. Cl. H01f 1/00

U.S. Cl. 148-120

7 Claims



Semi-hard magnetic alloy of a composition consisting of 1 to 20%, by weight, of Ni, 0.5 to 4.5%, by weight, of Al, 0.5 to 3%, by weight, of Ti, 0.01 to 5%, by weight, of Cu, if desired, and the rest of Fe. The alloy is heated to a temperature ranging from 300° C. to 900° C., cooled to a temperature below 300° C., and then cold rolled at a reduction rate of from 10 to 70% to further improve its magnetic characteristics.

3,574,004

PROCESSING OF GAS TURBINE ENGINE SHAFTING

John E. Flynn, Glastonbury, Conn., assignor to United Aircraft Corporation, East Hartford, Conn.

No Drawing. Filed Mar. 20, 1969, Ser. No. 809,040

Int. Cl. C21d 1/00

U.S. Cl. 148-127

4 Claims

Bi-metal gas turbine engine shafting, formed at one end from a high fatigue strength, creep limited low alloy steel

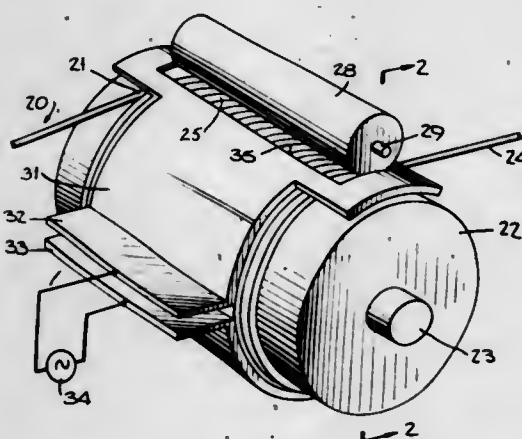
such as AMS 6340, and at the other end from a high creep strength age-hardenable nickel base alloy such as Inconel 718, is heat treated in an unconventional cycle to attain and preserve the advantageous mechanical properties at both ends of the shafting.

3,574,005 METHOD FOR HEAT TREATING WIRE OR THE LIKE

Wallace C. Rudd, Larchmont, N.Y., assignor to AMF Incorporated, New York, N.Y.
Filed June 12, 1968, Ser. No. 736,415
Int. Cl. C21d 1/42

U.S. Cl. 148—150

4 Claims



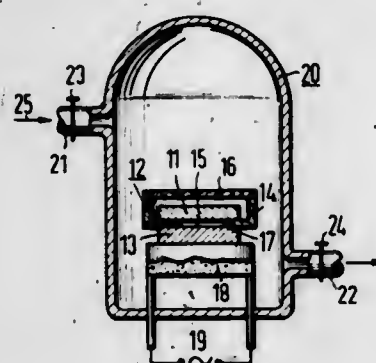
Various arrangements and methods are described for electrically heating a rapidly traveling wire as it proceeds along a helical path around a guide roll. A pressure roll structure cooperates with the guide roll to maintain adjacent turns of the helix in intimate contact where required or in contact with itself and the guide roll. One, or both, or neither, of the roll members may have at least an electrically conductive surface for providing a path for bridging currents between the helical turns of the wire. The pressure roll structure may be segmented and floatably mounted. The induction coil may be non-uniform in diameter to provide control of the heat generated over different portions of the wire helix.

3,574,006 METHOD OF PRODUCING SEMICONDUCTOR LAYERS BY PRECIPITATION FROM THE GASEOUS PHASE

Hansjürgen Dersin, Haidgraben 37, Ottobrunn, Germany, and Erwin Früchte, Balanstr. 151, Munich 9, Germany.
Filed July 1, 1966, Ser. No. 562,382
Claims priority, application Germany, July 1, 1965, S 97,931
Int. Cl. H01l 7/36

U.S. Cl. 148—174

10 Claims



The invention relates to a method for producing semiconductor layers of the same or variable conductance

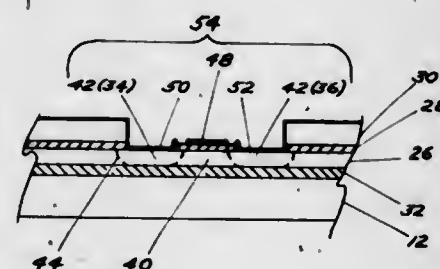
type and/or variable conductivity by precipitating from a gaseous phase upon a monocrystalline carrier body of the same or similar lattice structure. The invention prevents, during the precipitation of the semiconducting layers upon the carrier body, the edges of the carrier discs, which are particularly affected by the action of the reaction gas, from being brought into the growth layer which is comprised of another material. This is achieved by the carrier body for epitaxial precipitation being provided on all sides, but at least at the edges, with a protective covering which leaves free only that part of the surface upon which the semiconductor layer is to be precipitated.

3,574,007 METHOD OF MANUFACTURING IMPROVED MIS TRANSISTOR ARRAYS

Frances Hugle, Santa Clara County, Calif., assignor to Frances Hugle, as trustee of Francis Hugle trust
Filed July 19, 1967, Ser. No. 654,605
Int. Cl. H01l 7/36, 11/00

U.S. Cl. 148—175

5 Claims



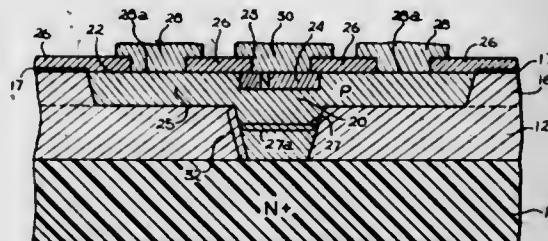
A process for producing a large plurality of MIS devices, which may also be associated with simultaneously produced circuit elements to form integrated circuits. A non-single crystal substrate receives a thin layer of semiconductor in an epitaxial reactor, a thinner layer of a first insulating material, a thicker layer of a second insulating material, selective etching of these insulating materials, the formation of junctions by diffusion through etched areas, and a metallic coating deposited and etched to provide connections. Plural reactor steps are successively taken to minimize contamination of the product.

3,574,008 MUSHROOM EPITAXIAL GROWTH IN TIER-TYPE SHAPED HOLES

Edward J. Rice, Los Angeles, Calif., assignor to TRW Semiconductors, Inc., Lawndale, Calif.
Filed Aug. 19, 1968, Ser. No. 753,643
Int. Cl. H01l 7/36, 5/00

U.S. Cl. 148—175

15 Claims



A structure formed by, and a process for growing epitaxial layers of silicon on an exposed surface of a silicon wafer through openings in a passivating structure having a predetermined "tier-type" configuration. The

devices formed by this method have improved breakdown voltage characteristics. Further, the method makes possible the ability to vary and control junction capacitance as required.

3,574,009 CONTROLLED DOPING OF SEMICONDUCTORS

George Chizinsky, Beverly Farms, and Edward Simon, Manchester, Mass., assignors to Unitrode Corporation, Watertown, Mass.

Filed Mar. 6, 1968, Ser. No. 710,896

Int. Cl. H01l 7/34

U.S. Cl. 148—187

10 Claims

A method for controllably doping a semiconductor body in which only time and temperature are the process parameters controlled to achieve intended doping profiles. A concentration of dopant determined only by temperature is formed on a semiconductor surface to act as a source layer for subsequent diffusion. A selected amount of dopant from this source layer is driven into the semiconductor and, after drive-in of the selected amount, further drive-in of dopant is prevented. This selected amount of dopant is then diffused into the semiconductor to achieve the desired impurity concentration and depth.

3,574,010 FABRICATION OF METAL INSULATOR SEMICONDUCTOR FIELD EFFECT TRANSISTORS

George A. Brown, Richardson, Tex., assignor to Texas Instruments Incorporated, Dallas, Tex.

Filed Dec. 30, 1968, Ser. No. 787,769

Int. Cl. H01l 7/34, 7/36

U.S. Cl. 148—187

8 Claims

A process of fabricating a MISFET in which a pair of spaced apart doped silicon dioxide bodies is formed on the surface of a silicon substrate. A layer of silicon nitride is formed over the surface of the bodies and the substrate and the portion of the layer in the space between the blocks is removed. A thin layer of the silicon substrate is then removed from the space between these bodies and a relatively thin silicon dioxide layer is formed on the silicon substrate in this space. A second layer of silicon nitride is then formed over the first silicon nitride layer and the silicon dioxide layer thereby to form a dielectric region for the gate of the transistor. Thereafter source and drain regions are formed by diffusing impurities from the doped silicon blocks into underlying portions of the silicon substrate thereby forming source and drain regions, the silicon nitride layers preventing out-diffusion of the dopant from the doped bodies and the second silicon nitride layer covering any gaps between the silicon dioxide layer in the gate region between the silicon dioxide layer and the first silicon layer.

3,574,011 AQUEOUS SLURRIED EXPLOSIVE OF IMPROVED POURABILITY CONTAINING A POLYACRYLAMIDE THICKENER AND SODIUM PERCHLORATE

Herbert K. Knight, Jr., Flanders, N.J., assignor to Hercules Incorporated, Wilmington, Del.
No Drawing. Continuation-in-part of application Ser. No. 694,097, Dec. 28, 1967. This application Dec. 16, 1968, Ser. No. 784,210

Int. Cl. C06b 11/00

U.S. Cl. 149—70

20 Claims

Inorganic oxidizer salt explosive compositions of the aqueous slurry type having improved low temperature flow properties are provided, which contain a polyacrylamide thickener system in combination with 50-90 weight percent total aqueous phase, sodium perchlorate

as at least 75 percent of the total inorganic oxidizer salt, and said aqueous phase containing said sodium perchlorate dissolved therein in a weight ratio to water of from 1:1 to 1.5:1.

3,574,012 TRIMETALLIC MASKS AND METHOD

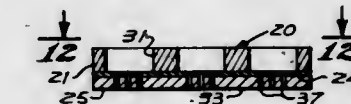
Mortimer Penberg, Claremont, Calif., assignor to Aerojet-General Corporation, El Monte, Calif.

Filed Jan. 6, 1969, Ser. No. 789,291

Int. Cl. B23p 3/20; C23f 1/00

U.S. Cl. 156—3

20 Claims



A trimetallic mask according to this disclosure comprises a base having coarse apertures formed therein. A thin film layer of fine grain metal is bonded to the base by an intermediate thin film of noble metal. Fine apertures are formed in the fine grain layer.

The mask is formed by depositing a thin film of noble metal onto a surface of the base and thereafter depositing a thin film of fine grain metal onto the noble metal layer. Coarse apertures are selectively etched in the base and fine apertures are selectively etched in the fine grain thin film.

3,574,013 APERTURE MASK FOR COLOR TV PICTURE TUBES AND METHOD FOR MAKING SAME

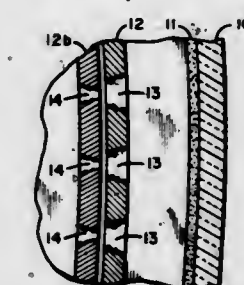
John J. Frantzen, North St. Paul, Minn., assignor to Buckbee-Mears Company, St. Paul, Minn.

Filed Jan. 6, 1969, Ser. No. 789,264

Int. Cl. C23f 1/00; H01j 29/18

U.S. Cl. 156—8

7 Claims



Aperture masks for color TV picture tubes are formed initially with the hole partially closed for use in laying down phosphor dot patterns on the tube screen after which the holes are opened for normal operation of the mask as part of the finished tube.

3,574,014 MASKING TECHNIQUE FOR SELECTIVE ETCHING

Frances Hugle, Santa Clara, Calif., assignor to Frances Hugle, as trustee of Frances Hugle trust

Filed July 24, 1967, Ser. No. 655,456

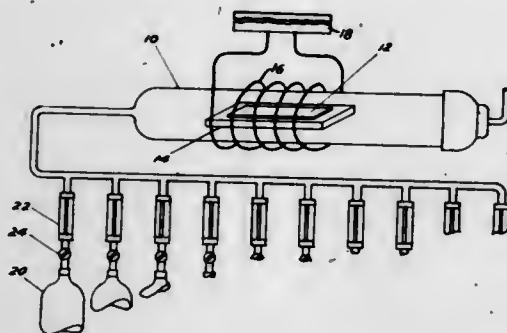
Int. Cl. H01l 7/44, 7/50

U.S. Cl. 156—17

7 Claims

A process for forming a pattern in a dielectric layer by depositing the layer upon a semiconductor at elevated temperature from a gas, depositing a layer of metal over that by changing the gas while keeping the work in the same chamber, removing the layer of metal by a beam of

energy (such as an electron or a laser beam) where the dielectric layer is to be formed into a pattern, and etch-



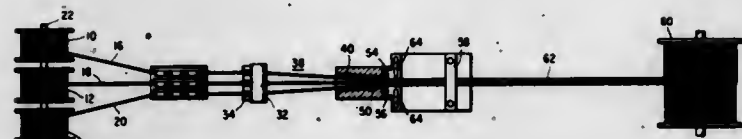
ing the dielectric layer by an etch that is effective upon that layer but not effective upon the layer of metal.

3,574,015 METHOD AND APPARATUS FOR JOINING CONDUCTORS

James Clark Blee, R.R. 9, 8687 Notestine Road, Fort Wayne, Ind. 46805
Filed May 8, 1967, Ser. No. 636,989
Int. Cl. H01b 13/00

U.S. Cl. 156-47

9 Claims



A plurality of resin bonded conductors are passed continuously from supply reels into converging paths after passing through straighteners and devices which are used for aligning the conductors into a single plane. After the conductors have converged by a predetermined amount, a hot air blast is directed transversely to the conductors and between the gaps provided between adjacent conductors. The surfaces of the conductors which confront each other are subjected to localized intense heating and before the surfaces can cool, they are brought into light contact with each other so that there is a tangential weld bonding between the conductors, forming a continuous, welded seam which holds the conductors together in the form of a cable. None of the insulation is removed from the imbedded conductor material, nor is the insulation distorted.

3,574,016 METHODS OF FORMING SEAMS IN MOISTURE BARRIERS FOR CABLES

Roger R. Wahlberg, Bloomfield, N.J., assignor to Western Electric Company, Incorporated, New York, N.Y.
Original application Oct. 20, 1967, Ser. No. 676,770.
Divided and this application Apr. 1, 1969, Ser. No. 836,182

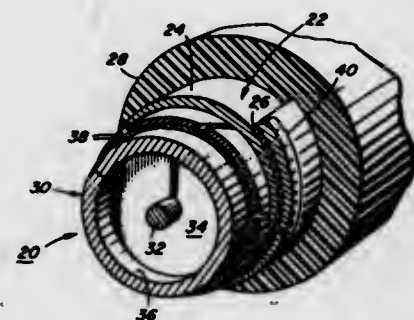
Int. Cl. H01b 13/10

U.S. Cl. 156-54

6 Claims

A communications cable sheath is provided with a sealed metallic barrier to prevent moisture diffusion into transmission components of the cable. The barrier is formed of a longitudinally applied metallic strip in which a resultant overlapped seam is sealed with an acrylic acid-ethylene copolymer that has been inserted into the seam, in tape form, and subsequently heated by the extrusion of a thermoplastic sheath over the metallic strip

or, in the alternative, is heated by passing the formed metallic strip and the associated transmission components through an induction type or other appropriate heating device. An alternate embodiment involves a cable sheath in which the copolymer is applied as a precoat on the



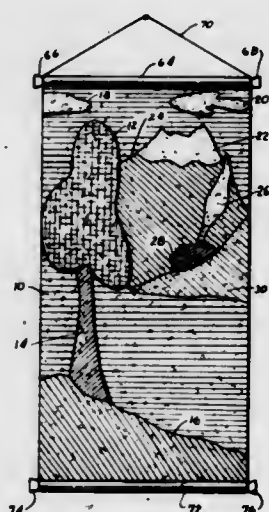
inside surface of the metallic strip. Heat transfer from the thermoplastic extrusion operation to the overlapped seam can take place without encountering an insulating barrier of the copolymer. The latter embodiment can be practiced with virtually no change to conventional cable sheathing equipment and apparatus.

3,574,017 ORNAMENTAL SYSTEM

David Kass, 5 Schenk Ave., Great Neck, N.Y. 11020
Filed Apr. 9, 1969, Ser. No. 814,713
Int. Cl. B44c; B32b 3/16

U.S. Cl. 156-63

17 Claims



An ornamental system including a plurality of components which are formed into a pictorial design or pictorial composition, preferably for use as a wall hanging assembly, is provided. The system includes four main components which are joined in a prescribed manner during the formation of the pictorial composition. The components may be provided with indicia of one kind or another for a proper matching thereof to assist in the assembly operation. One such indicia is the use of outline shapes of the individual objects which form a part of the final pictorial composition. The outline shapes are printed on an object forming guide member to assist in the accurate formation of an object. After formation, the several objects are placed on a guide sheet which is used to precisely position the variously shaped objects. A background unit is also included, and it is upon this unit that the properly positioned objects are transferred from the guide sheet to form the completed pictorial composition.

3,574,018 CASE FOR SMALL ARTICLES AND METHOD OF MANUFACTURING THE SAME

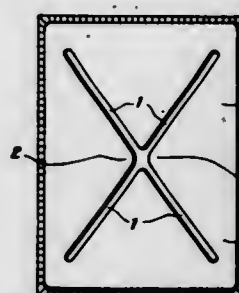
Atsumi Fujisawa, 26-13 Asakusa 2-chome, Taiko-ku, Tokyo, Japan

Filed Sept. 26, 1967, Ser. No. 670,675
Claims priority, application Japan, Sept. 27, 1966, 41/63,383

Int. Cl. A44b 19/34

U.S. Cl. 156-66

4 Claims



A case for small articles comprises a pair of superposed sheets of flexible, heat sealable, synthetic resin heat sealed to each other along their peripheral edges. One of the sheets has a substantially rectangular opening therein while the other sheet is substantially imperforate. A pad board of relatively thick paper, formed with a score line or lines extending along its longitudinal center line is inserted into the resultant bag, and may have a sheet of synthetic resin along its unscored surface. A separable slide fastener is secured around the periphery of the opening in the one sheet, and an inner lining of flexible synthetic resin is placed over the pad board. The case may be folded about the score lines of the pad board, and the separable slide fastener closed.

In one embodiment of the invention, the two initially superposed sheets have their heat sealed edges returned by turning the "bag" inside out after cutting two diagonally intersecting slits in the surface of one sheet to form four substantially triangular tabs. In the other embodiment of the invention, the heat sealed edges of the original sheets are covered by an edge tape heat sealed to one of the sheets and turned back on itself to overlap the other sheet, the inner periphery of this edge tape defining the aforementioned opening.

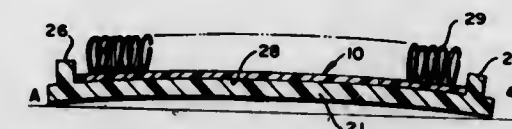
3,574,019 METHOD OF MAKING A LAMINATED FASTENING DEVICE

Laurent H. Girard, Bedford County, N.H., assignor to American Velcro, Inc.
Original application Oct. 7, 1966, Ser. No. 585,023, now Patent No. 3,391,434. Divided and this application Aug. 23, 1968, Ser. No. 749,891

Int. Cl. A41h 43/00

U.S. Cl. 156-66

6 Claims



A method of making a fastening device by extruding plastic as a substantially rectangular strip having a concave base and a convex surface cooling the extruded strip. A tape member is coated on its under surface with a thermoplastic; the opposite surface of the tape member has a plurality of hooking elements extending therefrom. The thermoplastic adhesive is then heated and the adhesive coated surface of the tape fastener is combined with the convex surface of the cooled vinyl strip and passed through complementary concave-convex pressure rolls tailored to the form of the extruded strip to achieve an adhesive bond along the entire curved surface.

3,574,020 METHOD OF EMBOSsing VINYL-COATED FABRICS

Reuben Wisotzky, Lexington, Mass., assignor to Pandel, Inc., Lowell, Mass.

No Drawing. Filed Apr. 27, 1970, Ser. No. 32,383
Int. Cl. B32f 31/22

U.S. Cl. 156-79

10 Claims

A method of providing a variety of embossing designs on a thermoplastic resin-coated fabric material from a single embossing roll surface is provided by interposing one or more thin sheet materials having a different modulus of elasticity than the material to be embossed between the surface of the thermoplastic resin material to be embossed and the embossing surface and during the embossing controlling the tension of the interposed sheet material, thereby providing a variety of surface design effects from a single embossing surface.

3,574,021 PROCESS FOR MAKING A THREE-LAYER POROUS LEATHER SUBSTITUTE

Edward C. Van Buskirk, South Bend, Ind., assignor to Uniroyal, Inc., New York, N.Y.

No Drawing. Continuation-in-part of application Ser. No. 340,497, Jan. 27, 1964. This application Feb. 26, 1969, Ser. No. 802,636

Int. Cl. B32b 5/18

U.S. Cl. 156-79

6 Claims

A novel, breathable, leather-like three-layer laminate is produced having a fabric backing layer, an intermediate breathable sponge layer and an upper breathable surface layer by a method in which a substantially uniform mixture of a fluid organic plastic film forming material and a meltable material incompatible therewith is formed into a thin surface layer, there is formed on the thin layer a thicker body layer from a substantially uniform mixture of a fluid organic plastic film forming material containing a meltable material incompatible therewith and a blowing agent, with said incompatible meltable material in each said layer being in a physical form having a bulk density less than its actual density, a fabric is applied to the body layer, the film forming material in the two layers is formed into a unitary film bonded to the fabric, the body layer is sponged by decomposing a blowing agent, and the incompatible material in the two layers is melted after a matrix has been formed of the two layers.

3,574,022 CONVEYING OR DRIVING BELT AND METHOD FOR MAKING SAME

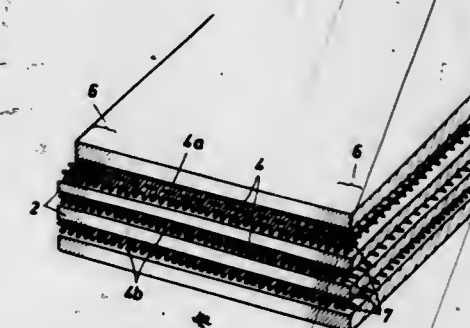
Walter Rudolf Lampert, Hamburg, Germany, assignor to H. Rost & Co., Hamburg, Germany

Filed Feb. 19, 1968, Ser. No. 706,347
R 45,354

U.S. Cl. 156-88

Int. Cl. D06c 25/00

14 Claims



A multi-layer conveyor or drive belt and a process of manufacturing the multi-layer belt which comprises utilizing a plurality of alternate fabric sheets and bonding

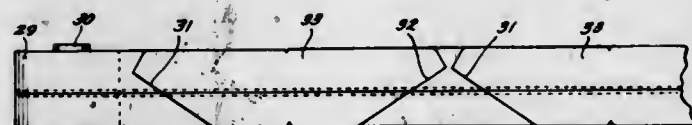
material sheets or utilizing fabric sheets coated or treated with a bonding material, the fabric sheets being formed with wefts of fabrics, body warps of fabric and peripheral warps of a material which upon lamination of the sheets will fuse with the bonding material.

3,574,023 PROCESS FOR MAKING COMPOSITE, IN-COLLAR BLANKS

Francis J. Dickenherr, Cincinnati, Ohio, assignor to Palm Beach Company, Cincinnati, Ohio
Filed July 11, 1968, Ser. No. 744,093
Int. Cl. B32b 7/08

U.S. Cl. 156-93

1 Claim



A continuous process for making in-collar blanks from separate strips of inner collar felt material and two interliner strips including fusion of the felt material to the interliner strips to form a composite, in-collar strip and the step of blanking out inner collar forms from the composite, in-collar strip.

3,574,024 METHOD OF BONDING A WINDOW TO THE WINDOW OPENING IN A VEHICLE

Alan D. Rose, Oadby, England, assignor to Bitumen Industries Limited, Slough, Buckinghamshire, England
Continuation-in-part of application Ser. No. 531,599, Mar. 3, 1966, which is a continuation-in-part of application Ser. No. 359,097, Apr. 13, 1964. This application Feb. 4, 1969, Ser. No. 796,447
Int. Cl. B60j 1/02

U.S. Cl. 156-108

10 Claims

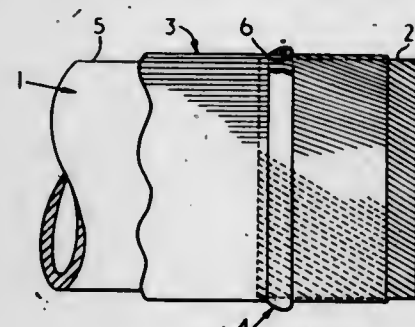
This invention relates to a method and means for bonding windows into automobile bodies. A bonding strip comprising a curable synthetic polymeric material having an electrical conductor running therethrough is used.

3,574,025 METHOD OF MANUFACTURING PNEUMATIC TIRES

John F. Askam, Sutton Coldfield, England, assignor to The Dunlop Company Limited, London, England
Filed Nov. 27, 1968, Ser. No. 779,390
Claims priority, application Great Britain, Dec. 1, 1967, 54,829/67
Int. Cl. B29h 17/22

U.S. Cl. 156-124

3 Claims



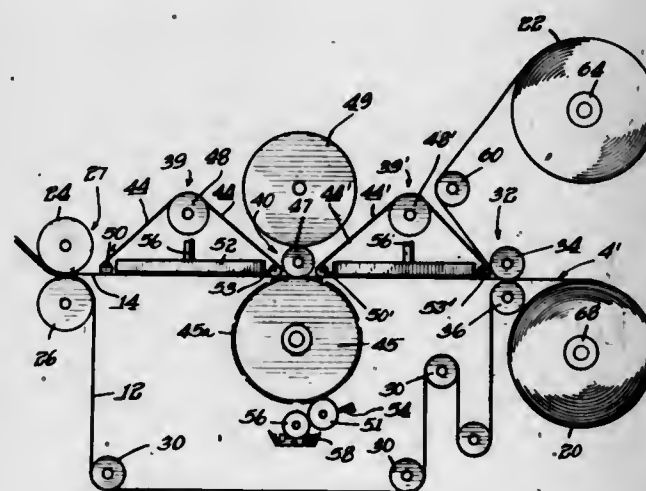
A method of preventing distortion of the turned-up portion of a 90° metal carcass ply in the manufacture of a pneumatic tire provided with a filler of bias laid metal cords comprising off-setting the cord ends of the carcass ply before turn-up to compensate for the distortion.

3,574,026 METHOD AND APPARATUS FOR FABRICATING LABEL STOCK

Leo Kuchek, Chicago, Ill., assignor to Compac Corporation, New York, N.Y.
Filed Aug. 23, 1966, Ser. No. 574,373
Int. Cl. B32b 31/18

U.S. Cl. 156-152

8 Claims



This invention relates to an apparatus and a method for manufacturing label stock of the type including a backing strip having separated longitudinally spaced printed labels thereon secured to the backing strip by a layer of pressure sensitive adhesive coating on the inner unprinted side of the labels. The completed label stock is usually wound into rolls for convenience in handling, storage and shipment to the ultimate user. The user places the rolls of label stock on a label applying machine and threads an unwound end of the roll through a label applying head of the machine. The label applying machine dispenses labels automatically one at a time from the backing strip as an article is moved to a labeling station of the machine. The labels readily peel from the backing strip by passing the backing strip around a sharply angled plate called a peeler plate. The rigidity of the labels causes the labels to peel from the backing strip at the point where the backing strip bends sharply back at the tip of the peeler plate. The peeled labels are received one at a time by the label applying head of the label applying machine with the pressure sensitive adhesive coated sides thereof facing away from the head which then applies each label to an article delivered to the labeling station of the machine.

3,574,027 METHOD OF MANUFACTURING HEAT INSULATING PRODUCTS, SUCH AS SHELLS

Alain Bonnet, Clermont, France, assignor to Compagnie de Saint-Gobain, Neuilly-sur-Seine, Hauts-de-Seine, France

Filed May 26, 1967, Ser. No. 641,686

Claims priority, application France, June 3, 1960, 64,054

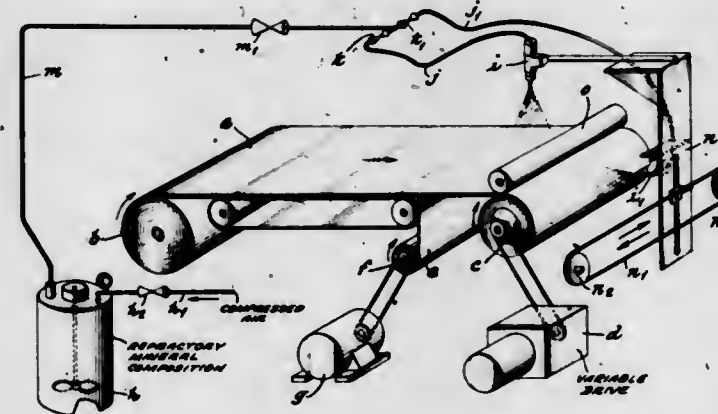
Int. Cl. B65h 81/02

U.S. Cl. 156-191

8 Claims

The invention concerns the production of laminated bodies of insulation from a mat of mineral fibers which is impregnated with a polymerizable synthetic resin and additions of refractory mineral compositions to control the cellular structure of the bodies and their consequent insulating properties following the heating thereof. More particularly, the invention contemplates the production of cylindrical insulating shells for pipes or conduits subjected to high temperatures by winding a plurality of layers of a mat of glass fibers having an unpolymerized

resin interspersed therethrough, while spraying onto the mat, before and/or during the winding operation, an aqueous dispersion of a refractory mineral composition in controlled amounts. The subsequent heating of the mandrels bearing the spirals of the mat, results in the polymerization of the resin and the vaporization of the



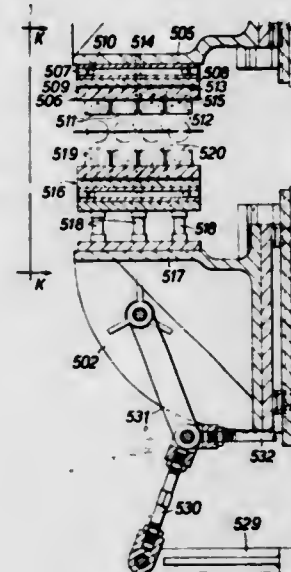
water component of the dispersion, leaving a body of glass fibers bound together by a hardened polymerized resin and also by a skeletal framework of bonds of hardened refractory material, the density of which increases relatively to the fibers from the exterior of the shell to the interior thereof, whereat the maximum heat-insulating effects are desired.

3,574,028 METHOD FOR THE ALIGNMENT OF PARTS OF ARTICLES

Norman Ashcroft Hurst, Four Oaks, Thomas Edward Horace Gray, Sutton Coldfield, and James Jones-Hinton, Tanworth-in-Arden, England, assignors to Dunlop Rubber Company Limited, London County, England
Filed Dec. 14, 1966, Ser. No. 601,625
Claims priority, application Great Britain, Dec. 15, 1965, 53,344/65
Int. Cl. B29c 27/04

U.S. Cl. 156-228

3 Claims



A method for accurately relatively aligning parts of articles from an initially substantially aligned position utilising accurately relatively positioned locating means for each of the parts, and separating the locating means carrying the parts to allow relative movement to take place between the locating means and the parts, in the separated position, resulting in accurate alignment of parts and locating means.

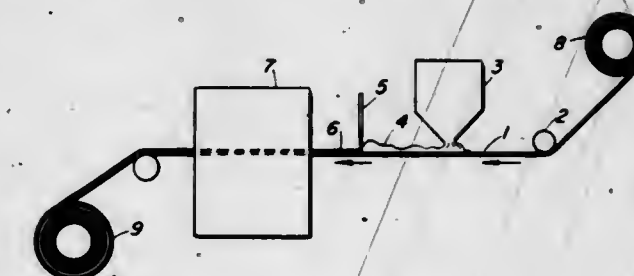
3,574,029 METHOD OF PRODUCING MULTI-LAYER TRANSFERABLE CASTINGS

Kitty S. Ettre, Norwalk, Conn., assignor to Spears, Inc., Stamford, Conn.

Continuation-in-part of application Ser. No. 377,998, June 25, 1964. This application Apr. 4, 1968, Ser. No. 718,709
Int. Cl. B44c 1/16; B41m 3/12; B28b 19/00

U.S. Cl. 156-231

9 Claims



A process for making a multiple-layer transferable unfired casting supported on a temporary substrate. The layers are separately cast on temporary substrates and are then brought together and bonded, after which one of the temporary substrates is stripped away. The resulting multiple-layer casting can be transferred to a permanent substrate and fired.

3,574,030 METHOD OF MAKING FLEXIBLE GLASS LAMINATES

Alexander H. Callander, Big Flats, N.Y., and Kenneth E. Kolb, Peoria, Ill., assignors to Corning Glass Works, Corning, N.Y.

Continuation-in-part of application Ser. No. 186,433, Apr. 10, 1962. This application July 22, 1968, Ser. No. 746,675
Int. Cl. B29b 3/02; B32b 7/02, 17/10

U.S. Cl. 156-244

20 Claims

This invention relates to a method of making a thin flexible laminated structure formed of a thin glass sheet having a thickness of less than about 0.005 inch and at least one thin sheet of flexible non-vitreous material permanently adhered or bonded to the glass sheet.

3,574,031 METHOD OF HEAT WELDING THERMOPLASTIC BODIES USING A STRATUM OF SUSCEPTOR MATERIAL

William C. Heller, Jr., 3521 N. Shepard Ave., Milwaukee, Wis. 53211, and Alfred F. Leatherman, Columbus, Ohio; said Leatherman assignor to said Heller
Filed Mar. 24, 1967, Ser. No. 625,650
Int. Cl. B29c 27/02

U.S. Cl. 156-273

13 Claims

The present invention relates generally to improvements in the art of heat welding or sealing thermoplastic materials, and relates more particularly to an improved method of sealing thermoplastics through use of a material containing a susceptor which is utilized to generate the sealing heat.

3,574,032 CONTACT BODY FOR WATER AND AIR AS EMPLOYED IN COOLING TOWERS

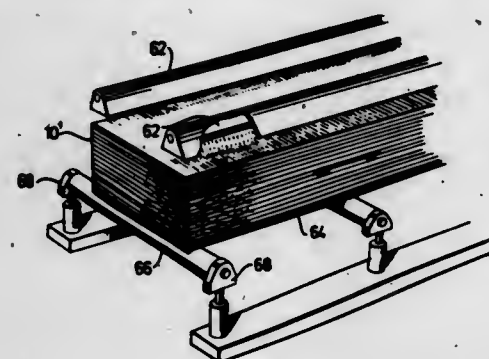
Per Gunnar Norback, 33 Askrikevagen, Lidingsö 1, Sweden, and George W. Meek, 1205 6th St., Page Park, Fort Myers, Fla. 33901
Filed July 15, 1966, Ser. No. 565,483
Claims priority, application Sweden, Jan. 26, 1966, 1,040/66
Int. Cl. B31f 1/20; B32b 3/02, 7/14

U.S. Cl. 156-291

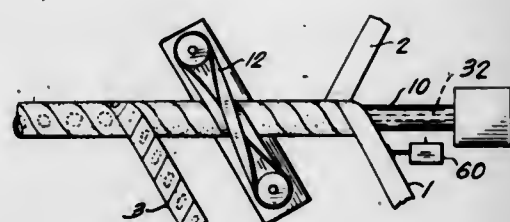
3 Claims

This disclosure provides a method of preparing corrugated, non-metallic layer elements for use in the production of a contact body for gas and liquid. An adhesive

material having adhesive characteristics effective to be re-activated by change in surrounding atmospheric conditions is used in the method of this invention. The adhesive material is applied to at least a portion of the corrugations at a plurality of points of contact for adjacent layer elements to be used in a contact body for gas and liquid. The adhesive material is subsequently dried to a solid, non-adhesive condition to form an intermediate article of



a winding mechanism, an extrusion head moveably mounted on the free end of the mandrel and positioned



to extrude sealant into the joint of the composite container wound on the mandrel or, if desired, over the total inner surface of the wound container.

manufacture. This intermediate article of manufacture may be subsequently stored or assembled in the field to form a contact body for gas and liquid. Once the intermediate articles have been stacked appropriately with respect to each other, the adhesive material is reactivated to cause the adjacent sheet elements to adhere thereto. Subsequent resolidification of the adhesive material effects the production of the desired contact body.

3,574,033

METHOD OF APPLYING A QUANTITY OF INDIUM TO THE INNER WALL OF A LAMP BULB

Dirk Kolkman, Adolf Jan de Visser, and Cornelis Johannes Adrianus Gerardus Heck, Emmasingel, Eindhoven, Netherlands, assignors to U.S. Philips Corporation, New York, N.Y.

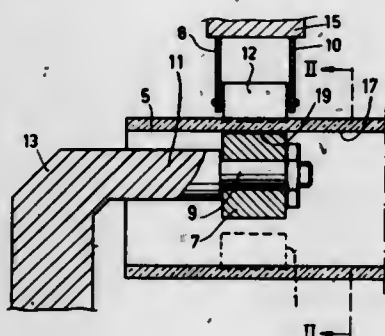
Filed Feb. 2, 1968, Ser. No. 702,626

Claims priority, application Netherlands, Feb. 11, 1967, 6702109

Int. Cl. C09J 5/00

U.S. Cl. 156—306

4 Claims



A method of attaching a quantity of indium material to the inner walls of a lamp bulb, by urging the material against the wall with a roller and moving the roller clockwise and counter-clockwise alternately.

3,574,034

MANUFACTURE OF HELICALLY WOUND CONTAINERS

Denis Michael Harvey and Alistair Kenyon Bodycomb, Bale d'Urfe, Quebec, Canada, assignors to Domtar Limited, Montreal, Quebec, Canada

Filed Apr. 18, 1968, Ser. No. 722,432

Claims priority, application Canada, Apr. 26, 1967, 988,952

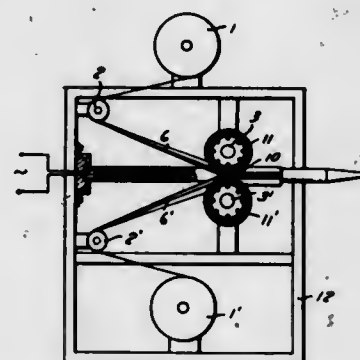
Int. Cl. B65h 81/06

U.S. Cl. 156—432

4 Claims

The present invention relates to an apparatus for forming composite tubes and comprising a winding mandrel,

A multi-tubular structure, for instance the pockets for pocket electrodes, is produced by concurrently moving two webs at equal speed along adjacent but spaced paths and causing, during such moving of the two webs, transversely spaced juxtaposed portions thereof to come in contact with each other while preventing contact between the intermediate portions of the two webs. The contacting portions are adhered to each other, so that longitudinally extending, transversely spaced adhering portions of the two webs form therebetween elongated pockets. This is accomplished in a device wherein the two superposed webs are passed between a pair of form rollers which turn about parallel axes, whereby each of the form rollers has a plurality of adjacent peripheral grooves separated by annular rims, and the distance between the axes of the form rollers is such that at the nip of the rollers the annular rims are in close proximity so that the grooves between the rims will define a plurality of substantially closed passages of the desired cross-section of the outer surfaces of the tubular portions of the multi-tubular structure. A plurality of rods is stationarily arranged so as to extend through the passages without contacting the walls of the grooves, and the two webs are passed between the rollers through the passages so that in the zones of the rims the webs will contact each other and will be adhered to each other by compression, heat or in any other suitable



3,574,035 DEVICE FOR PRODUCING MULTI-TUBULAR STRUCTURES

Hans Denks, Rheydt, Lutz Horn, Erlangen, and Josef Sucher, Hagen, Germany, assignors to Varta Aktiengesellschaft, Frankfurt am Main, Germany

Filed July 18, 1967, Ser. No. 654,097

Claims priority, application Germany, July 22, 1966, V 31,562

Int. Cl. B32b 31/08

U.S. Cl. 156—462

7 Claims

manner, while the rods interposed between adjacent juxtaposed rims will force the web portions against the inner wall of the grooves thereby shaping the tubular pockets.

3,574,036

APPARATUS AND METHOD FOR UPDATING INFORMATION FILES

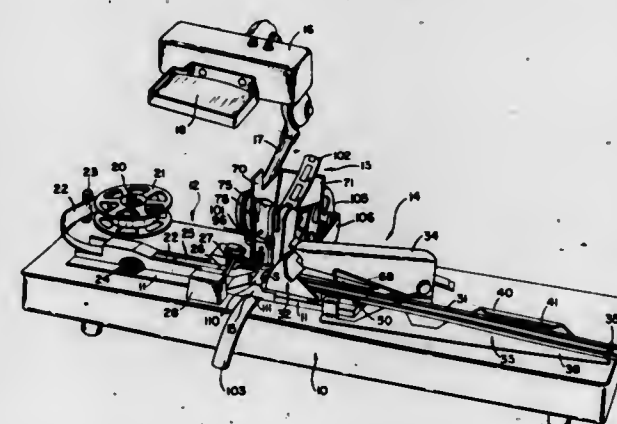
Edward B. Schoonmaker and Leonard J. Seaberg, Rochester, N.Y., assignors to Eastman Kodak Company, Rochester, N.Y.

Filed May 2, 1967, Ser. No. 635,414

Int. Cl. G03d 15/04

U.S. Cl. 156—502

9 Claims



Apparatus and a method of operation are disclosed for updating a file including at least one strip having a portion for receiving an information-bearing chip. The disclosed apparatus operates to move the portion of the strip to a predetermined location, to dispose a web of the information-bearing chips to the predetermined location, to attach the information-bearing chip to the strip, and to sever the attached information-bearing chip from the web.

3,574,037

ULTRASONIC SPLICER

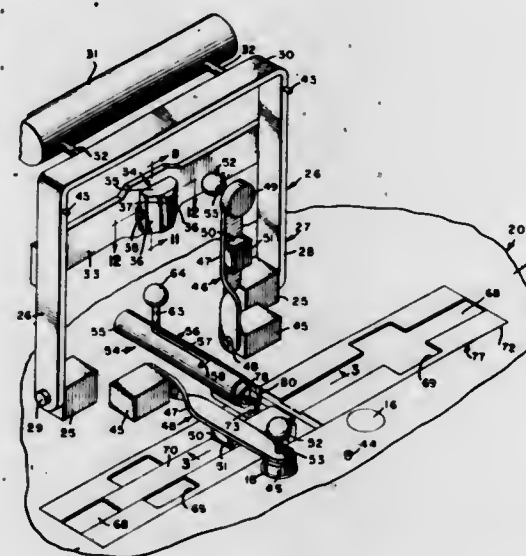
Howard Deans, Secane, and James Wynkoop, Drexel Hill, Pa., and George Goldberg, Jericho, N.Y., assignors to Kleer-Vu Industries, Inc., New York, N.Y.

Filed Feb. 12, 1968, Ser. No. 704,913

Int. Cl. G03d 15/04

U.S. Cl. 156—502

2 Claims



A high-speed splicer for sealing film ultrasonically which has a new cutting and handling concept, a compact console arrangement, a repeating mechanism and a means for providing a high tensile strength of splice.

3,574,038 APPARATUS FOR APPLYING ADHESIVE STRIPS TO CAN BODY BLANKS

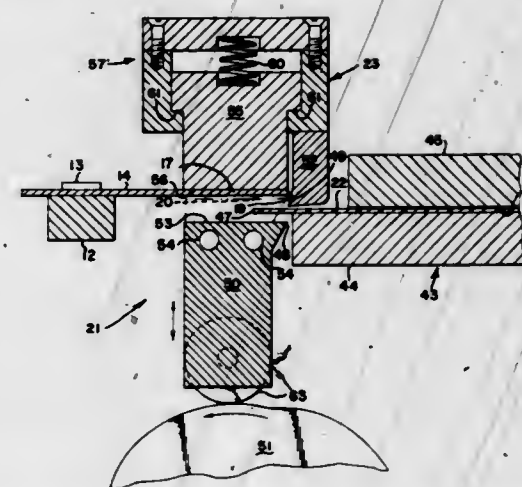
Robert W. Wolfe, Oak Lawn, Ill., assignor to Continental Can Company, Inc., New York, N.Y.

Original application July 31, 1967, Ser. No. 657,407, now Patent No. 3,515,614, dated June 2, 1970. Divided and this application Feb. 6, 1970, Ser. No. 9,259

Int. Cl. B32b 31/10, 31/18, 31/20

U.S. Cl. 156—515

13 Claims



An apparatus for applying a strip of thermoplastic adhesive along a marginal edge portion of body blanks for solderless cans.

The apparatus includes means for intermittently advancing the blanks toward the strip applying station; means for heating an edge portion of the blanks; strip shearing and applying means at the strip applying station, and means for intermittently advancing the terminal end of strip forming material into the strip shearing and applying means.

3,574,039

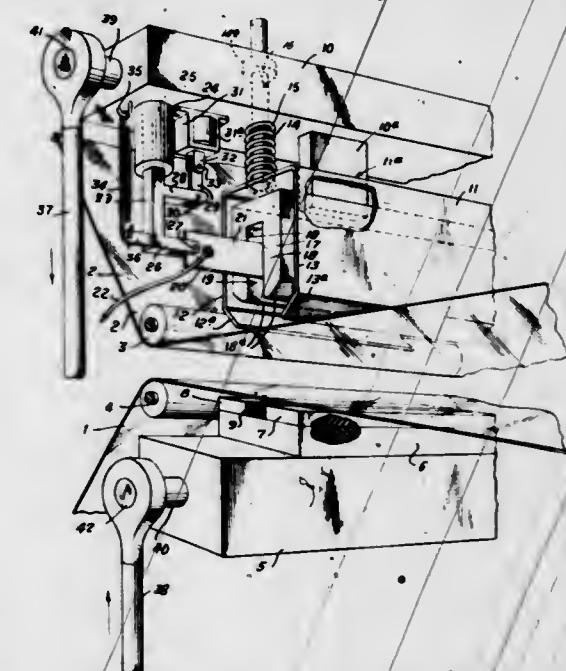
FILM SEALING AND CUTTING APPARATUS
Isaac N. Fehr, Sidney E. Cannon, William De Witt Goodman, Dan Sutherland, and Frank Shelby, Dallas, Tex., and Maurice Blais, Providence, R.I., assignors to Campbell Taggart Associated Bakeries, Inc., Dallas, Tex.

Filed Nov. 2, 1967, Ser. No. 680,223

Int. Cl. B32b 31/08, 31/20

U.S. Cl. 156—515

14 Claims



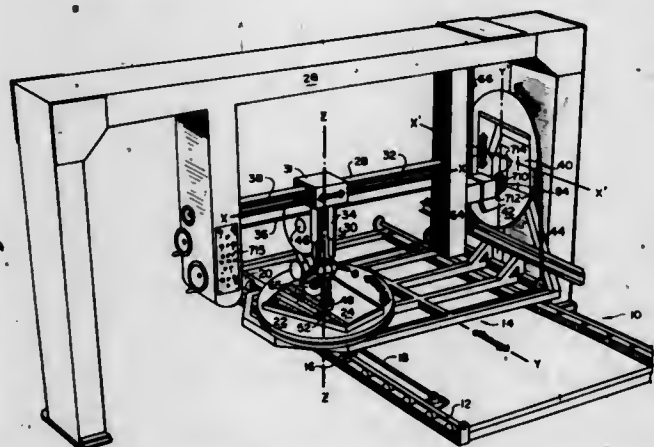
A device for sealing and cutting plastic film in a machine for packaging substantially uniformly shaped articles such as buns and other bakery products, which includes a base member, a holddown member, a sealing

bar and a hot ribbon cutter wherein the holddown member and sealing bar are arranged to come into pressure contact with layers of plastic film pressed thereunder, and the hot ribbon cutter is arranged to reciprocatingly come into contact between the spaced, parallel sealed surfaces of the film to sever same. This abstract should not be construed to limit the disclosure or the scope of the claims hereinafter annexed.

3,574,040

APPARATUS FOR MAKING LAMINATED STRUCTURAL SHAPES BY THE CONTROLLED DETRUSIVE PLACEMENT AND POLYMERIZATION OF TECTONIC FILAMENTOUS TAPES

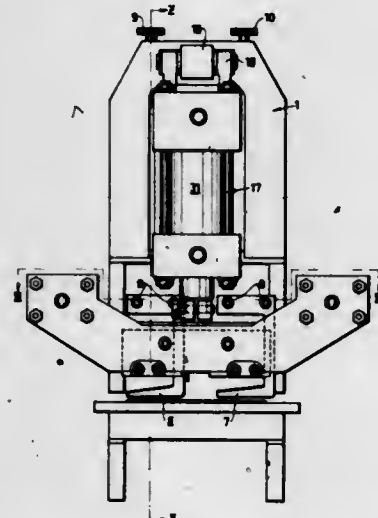
Billie E. Chitwood and Marvin S. Howeth, Fort Worth, Tex., assignors to General Dynamics Corporation
Filed June 29, 1967, Ser. No. 650,020
Int. Cl. B65h 25/26; B32b 31/04; B29c 17/04
U.S. Cl. 156—522 3 Claims



An apparatus characterized by its capability for precision, oriented, unidirectional placement and detrusion of tectonic filamentous tapes to form structural shapes. It is capable of operating in from a 3-axis to 5-axis coordinate trace and comprises, in combination, a function control system, a base member, a tape placement and detrusion pendant and a work supporting bed, at least one of the latter movable with respect to the other.

3,574,041

STRIP CUTTING AND AFFIXING APPARATUS
Hans-Georg Wilhelm Melle, Lund, Sweden, assignor to AB Tetra Pak, Lund, Sweden
Filed Aug. 5, 1968, Ser. No. 750,263
Claims priority, application Sweden, Aug. 7, 1967, 11,188/67
Int. Cl. B32b 31/18; B26d 5/08
U.S. Cl. 156—522 1 Claim



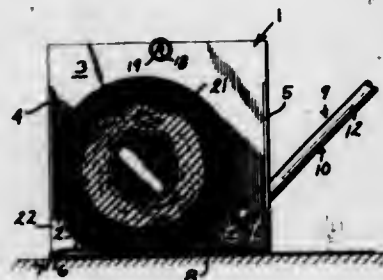
Apparatus to sever and heat seal a strip of material to a web of material using a fixed cutter blade and movable

cutter blade with the movable cutter blade being capable of movement away from and toward the fixed cutter blade without readjustment of the relative positions of the blades.

3,574,042

TAPE APPLICATOR

Thomas J. McMullen and Thomas James McMullen, Jr., Minneapolis, Minn., assignors to The McMullen Co., St. Paul, Minn.
Filed May 5, 1969, Ser. No. 821,718
Int. Cl. B32b 31/20; B44c 7/02
U.S. Cl. 156—577 5 Claims

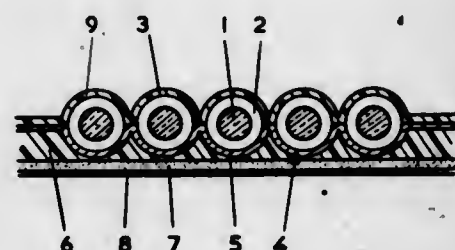


An applicator for applying elongated strips of tape, having pressure-sensitive adhesive thereon, to a floor or pavement surface and including a receptacle for a roll of tape, the receptacle having a bottom wall movable over said surface for applying pressure to the tape thereagainst during dispensing of the tape to said surface. A handle is connected to the receptacle for imparting applying movement thereto.

3,574,043

REFLECTIVE MATERIAL AND METHOD OF MAKING SAME

Leonard Joshua Luber, Woolahra, New South Wales, and Alfred Thomas Clutton, Harbord, New South Wales, Australia, assignors to Industrial Science Research Pty. Limited, Sydney, New South Wales, Australia
Filed Dec. 11, 1967, Ser. No. 689,439
Claims priority, application Australia, Dec. 13, 1966, 15,188/66
Int. Cl. B29d 27/04; B32d 27/04
U.S. Cl. 161—5 17 Claims



A reflective material and a method of making such material wherein a series of spaced reflective glass beads are encapsulated in a coating or surface material in solid or liquid form which is protectively enveloped by a carrying compound. The beads, the coating material and carrying compound are heated to a temperature sufficient to gasify the coating material which provides a series of coating gas bubbles retained within the carrying compound and each bubble encapsulates an individual bead which in effect is running freely in a gas bubble. The aforementioned components are then incorporated into a base carrier such as paint or ink or laminated to a base form in sheet form.

3,574,044

PRINTED FILM OF POLYBUTENE-1

Thomas Hugh Shepherd, Hopewell, N.J., assignor to Princeton Chemical Research, Inc., Princeton, N.J.
No Drawing. Filed Feb. 11, 1965, Ser. No. 432,004
Int. Cl. B29d 7/24; B44f 5/00
U.S. Cl. 161—6 4 Claims
Method of making printed polybutene-1 by forming a film of such polymer; stretching the film an amount sufficient to cause the film to become opaque; and treating selected portions of thus stretched film with heat and/or pressure under conditions sufficient to render such portions substantially transparent.

3,574,045

SKIN-TEMPERED GLASS AND PROCESS FOR MAKING

Richard E. Mould, Butler, Pa., assignor to Glass Container Industry Research Corporation, New Castle, Pa.
Filed Apr. 23, 1968, Ser. No. 723,395
Int. Cl. C03b 27/00
U.S. Cl. 161—164 19 Claims



A superfield temper is imparted to a surface or surface portion of a glass object by heating to a temperature within the viscoelastic range of the glass sufficiently to render the glass at said surface portion less viscous than the remainder of the glass at the interior of the object, and then quenching the heated surface portion to create a temperature gradient therein. The rates of heating and of quenching are desirably sufficiently high to avoid significantly raising the temperature of the rest of the cross-section of the glass at the surface portion. The temper can be imparted to all or part of one or more surfaces of the glass object, resulting in a thin compression layer on the treated surface, an adjacent compensating tension layer, and a neutral layer practically free of significant stress. Other features of the invention appear in the following specification and accompanying drawing.

3,574,046

BIAXIALLY ORIENTED POLYETHYLENE-1:2-DIPHENOXYETHANE-4:4'-DICARBOXYLATE SHEETS

Richard Harold Barclay Buteux, Welwyn Garden City, England, assignor to Imperial Chemical Industries Limited, London, England
Filed Apr. 3, 1968, Ser. No. 718,615
Claims priority, application Great Britain, Apr. 20, 1967, 18,284/67; Nov. 24, 1967, 53,637/67
Int. Cl. B29d 7/24; B32b 27/36
U.S. Cl. 161—165 3 Claims
Balanced biaxially oriented and preferably heat-set films of polyethylene-1:2-diphenoxymethane-4:4'-dicarboxylate of 5 to 750 gauge in thickness.

3,574,047

COMPOSITE FILAMENT HAVING REDUCED STICKINESS

Satoshi Ando and Yusaku Tanaka, Osaka, Minoru Kojima, Osaka-fu, and Kyoichi Fujimura, Ibaraki, Japan, assignors to Kanegafuchi Bosai Kabushiki Kaisha, Tokyo, Japan, and Suisa Viscosa Societa Nazionale Industria Applicazioni Viscosa S.p.A., Milan, Italy
Original application Dec. 14, 1966, Ser. No. 601,757, now Patent No. 3,554,980, dated Jan. 12, 1971. Divided and this application Sept. 3, 1968, Ser. No. 798,208
Claims priority, application Japan, Dec. 23, 1965, 40/79,726
Int. Cl. D01d 5/28; D02g 1/00 1 Claim

Composite filaments having latent crimpability and reduced stickiness which consists essentially of (1) a homopolyamide derived from polyamide forming compounds selected from the group consisting of lactams, omega-aminocarboxylic acids and salts of diamines and dicarboxylic acids, and (2) a copolyamide derived from one of said polyamide forming compounds and at least one said polyamide forming compounds different therefrom, said copolyamide containing from about 0.3 to about 3% by weight of a mono- or dimetal salt of a mono- or dicarboxylic acids, said homopolyamide and copolyamide components being eccentrically disposed relative to each other throughout the length of the filament.

3,574,048

ADHESIVE FOR SYSTEM COPPER-POLYETHYLENE TEREPHTHALATE LAMINATES

Kenneth W. Klimisch, Northfield, Minn., assignor to G. T. Schjeldahl Company, Northfield, Minn.
No Drawing. Filed June 7, 1967, Ser. No. 644,057
Int. Cl. B32b 15/08; 15/20; C09j 3/16

U.S. Cl. 161—190 4 Claims
A laminate system including copper and polyethylene terephthalate, preferably bi-axially oriented polyethylene terephthalate, the members forming the laminate being bonded together by a film of an adhesive which consists essentially of a polyester resin modified with polymethylene polyphenylisocyanate. The preferred polyester resin composition is prepared from a linear saturated copolymer composition consisting of the ethyl esters of sebacic and terephthalic acids.

3,574,049

TRANSFER PRINTING

Pierre Sander, Tourcoing, France, assignor to Trentesaux-Toulemonde, Tourcoing, France
No Drawing. Filed Mar. 14, 1967, Ser. No. 623,045
Claims priority, application France, Mar. 16, 1966, 53,596
Int. Cl. B32b 15/20, 23/22, 29/00 6 Claims

U.S. Cl. 161—220 6 Claims
A temporary support for transfer printing, which consists of a member selected from a sheet of paper and an aluminum foil coated on one of its faces with a transfer coating of ethylcellulose which bears a pigmented film of a resin selected from the group consisting of the thermoplastic polyamide and vinyl resins.

3,574,050

PROCESS FOR SEPARATING INTO ITS COMPONENTS AND RECOVERING FOR REUSE PLASTIC COATED PAPER

John C. Rice, Tenafly, N.J., assignor to Lowe Paper Company, Ridgefield, N.J.
No Drawing. Continuation-in-part of abandoned application Ser. No. 74,983, Dec. 9, 1960. This application Aug. 21, 1962, Ser. No. 218,463
Int. Cl. D21b 1/08, 1/32; D21c 5/02 7 Claims
U.S. Cl. 162—5 7 Claims
Paper stock material coated with synthetic plastics is separated into its components for reuse. The coated paper

is shredded into about one-half to two inch strips. The strips are pulped into water at a temperature of about 160° F. where the defibering is accomplished without disintegration of the plastic waste. The pulped material is then screened whereby the plastic waste is separated from the cellulosic material.

3,574,051

RECOVERY OF BLACK LIQUOR

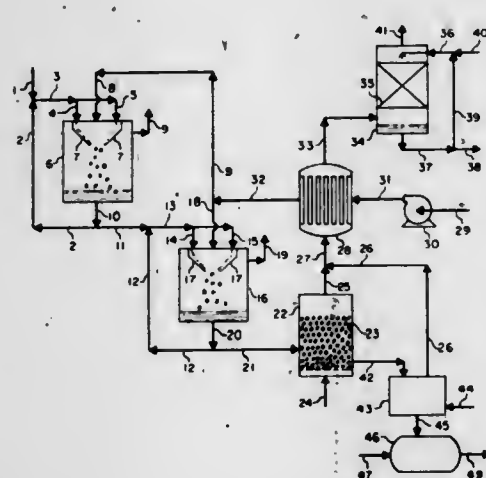
Indravadan S. Shah, Forest Hills, N.Y., assignor to Chemical Construction Corporation, New York, N.Y.

Filed Feb. 8, 1968, Ser. No. 704,054

Int. Cl. D21c 11/10, 11/12

U.S. Cl. 162—30

3 Claims



Weak black liquor derived from wood pulp processing as a result of pulp washing, is concentrated, and solid salts are produced for the preparation of green liquor which is recycled to the wood pulp process. The weak black liquor is concentrated by direct contact with hot air, and the concentrated liquor is reacted with process air at elevated temperature in a fluidized bed type of reactor, to produce solid sodium sulfate and sodium carbonate salts for recycle and a hot flue gas. The hot flue gas is passed in indirect heat exchange with ambient or initially warm air, to produce the hot air for black liquor concentration. The solid salts, consisting mostly of sodium sulfate and sodium carbonate, are reacted at elevated temperature with a reducing type gas in a chemical reactor, to produce a sodium sulfide-carbonate mixture which is dissolved in an aqueous liquid, such as water or dilute wash liquor, to produce green liquor. The hot gas stream discharged from the salts reduction step is preferably combined with the hot flue gas generated during solid salts production from concentrated black liquor, and the combined gas stream is then employed to preheat air. The process is preferably applicable to a kraft pulp process.

3,574,052

CHEMICAL PULPING AND BLEACHING IN AN ENCLOSED REACTION ZONE, BY REDUCTION OF CHLORATE

Göthe Oscar Westerlund and Kün Seto, Vancouver, British Columbia, Canada, assignors to Chemech Engineering Ltd., Vancouver, British Columbia, Canada

No Drawing. Filed July 7, 1967, Ser. No. 651,712

Claims priority, application Canada, Feb. 28, 1967, 983,967

Int. Cl. D21c 3/06

U.S. Cl. 162—64

22 Claims

A process for the treatment of cellulosic material in subdivided form including the steps of firstly providing an enclosed reaction zone for the treatment of the cellu-

losic materials; secondly providing a reactant liquor phase in the reaction zone; thirdly providing a superposed gas phase over the reactant liquor in the reaction zone; and fourthly agitating the cellulosic material in the enclosed reaction zone. The improvement involves using as the reactant liquor phase, an aqueous liquor comprising a liquor soluble chlorate and a reducing agent for the chlorate, the reducing agent being present in 0.1 to 2.0 molar excess based upon the amount of chlorate used. Because of the series of steps carried out and the particular composition of the reactant phase, the gas phase superposed over the reactant liquor in the enclosed reaction zone contains evolved chlorine dioxide and/or chlorine thus preventing any encrustation which may form on the outer walls or surfaces of the cellulosic materials.

3,574,053

ALKYL ACRYLATE-POLYALKYLENEIMINE SIZING COMPOSITION AND METHOD OF SIZING PAPER THEREWITH

William R. Hine, Jr., Kirkwood, and Myron J. Holm, St. Louis, Mo., assignors to Monsanto Company, St. Louis, Mo.

No Drawing. Continuation-in-part of application Ser. No. 500,209, Oct. 21, 1965. This application June 30, 1969, Ser. No. 837,959

The portion of the term of the patent subsequent to Aug. 12, 1986, has been disclaimed and dedicated to the Public

Int. Cl. D21d 3/00; D21h 3/40

U.S. Cl. 162—168

16 Claims

A composition of an alkyl acrylate having 22 to 30 carbon atoms in the alkyl group such as docosyl or octacosyl acrylate and a polyalkyleneimine or poly (N-methylalkyleneimine) or mixtures thereof having 2 to 3 carbon atoms in each alkylene bridge such as polyethyleneimine or poly (N-methylpropyleneimine). The composition is dispersed within the wet pulp as a size in the formation of a paper web.

3,574,054

METHOD AND APPARATUS FOR USING WIRE STRANDS AS FOURDRINIER WIRE DRAINAGE ELEMENTS

Ruel E. Taylor, Jr., West Buxton, Maine, assignor to Scott Paper Company, Delaware County, Pa.

Filed Aug. 6, 1968, Ser. No. 750,553

Int. Cl. D21f 1/54; D21g 9/00

U.S. Cl. 162—211

10 Claims

In a Fourdrinier papermaking machine, paper stock consisting of approximately 99 percent water is flowed onto an endless moving wire mesh. As this water seeps through the wire mesh and forms an irregularly shaped film on its underside, the surface tension of the film is broken and the water drained by a series of tensioned wire strands disposed below the mesh and transversely to mesh flow. The wire strands are secured at each end to the machine frames by adjustable wire brackets, which provide vertical adjustment to regulate the distance between the wire mesh and the wire strands and parallel adjustment to align the wire strands parallel to the wire mesh. Means are also provided for tensioning the wire strands.

3,574,055

ADJUSTABLE GUIDE FOR THE FORMING ZONE OF A PAPER MACHINE

David R. Gustafson, Rockton, Ill., assignor to Beloit Corporation, Beloit, Wis.

Filed Nov. 15, 1967, Ser. No. 683,225

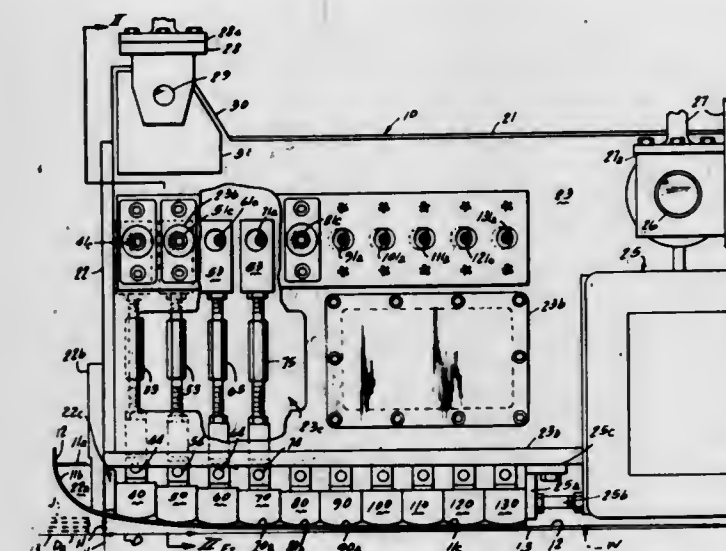
Int. Cl. D21f 1/36

U.S. Cl. 162—303

9 Claims

A paper web is formed between a pair of converging forming wire runs. A plurality of bars, each of

which extends transversely across the wire runs, forms a contoured longitudinally extending guide surface. A thin guiding sheet, which conforms to the contoured guide surface, guides one of the wire runs along the contoured guide surface and into gradual convergence with the other wire run. Each of the plurality of bars is mounted for



independent and separate adjustment to selectively alter the contour of the guide surface.

3,574,056

STRIPPING FOIL ASSEMBLY FOR PAPER MACHINES

Hans Jud, Esslingen, and Manfred Nussbaum, Plochingen, Germany, assignors to Feldmühle Aktiengesellschaft, Dusseldorf, Germany

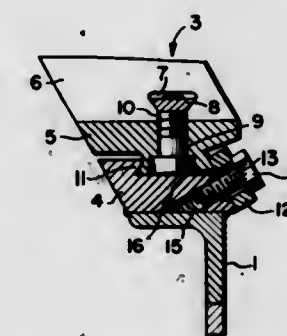
Filed Mar. 20, 1968, Ser. No. 714,747

Claims priority, application Germany, Mar. 22, 1967, F 51,909

Int. Cl. D21g 9/00

U.S. Cl. 162—352

7 Claims



Carrier steel bars extending across the width of the Fourdrinier wire in a paper machine carry metallic or plastic supports elongated in the direction of wire width and releasably attached to the carrier bars in end-to-end relationship. Foil sections of sintered alumina are juxtaposed on each support, thereby permitting adjustment and removal of the foil sections without disturbing their relationship with a contiguously adjacent metallic support.

3,574,057

GAS CORE NUCLEAR REACTOR

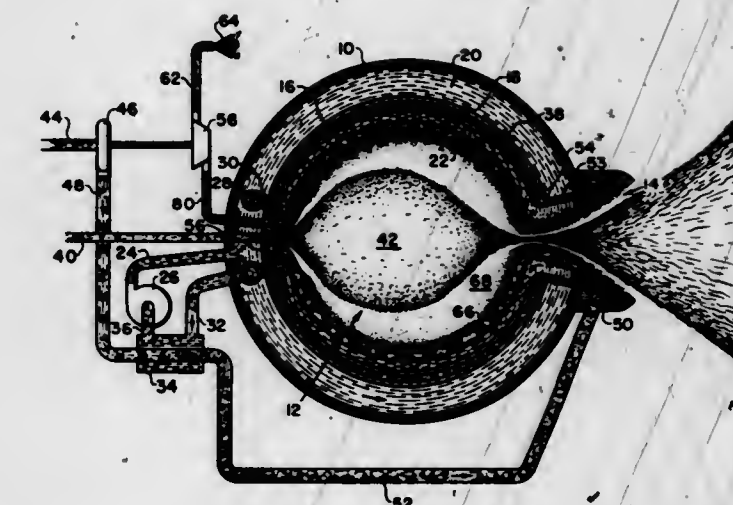
Frank E. Rom, Avon Lake, Ohio, assignor to the United States of America as represented by the Administrator of the National Aeronautics and Space Administration

Filed May 27, 1968, Ser. No. 732,455

Int. Cl. G21c 3/56, 19/28

U.S. Cl. 176—45

11 Claims



A gas passes through a pervious liner into a gaseous core nuclear reactor. This gas cools the liner and is then heated by a fissionable gas in the core. The heated gas is discharged from the reactor.

3,574,058

NUCLEAR FUEL ASSEMBLY

André Gumuchian, Paris, France, assignor to Commissariat à l'Energie Atomique, Paris, France

Filed Nov. 27, 1967, Ser. No. 685,862

Claims priority, application France, Dec. 5, 1966, 86,219

Int. Cl. G21c 3/32

U.S. Cl. 176—78

7 Claims



A nuclear fuel assembly comprising at least one bundle of pins provided with expansion chambers and disposed

within a tubular box which constitutes a coolant circulation system.

The box comprises a central tubular support structure having a bottom end-fitting and a top end-fitting or lifting head. The tubular structure serves to support the pins and constitutes an axial duct which by-passes the space located between the expansion chambers.

3,574,059

CONTROL ROD ARRANGEMENT FOR LIGHT WATER NUCLEAR REACTORS

Bengt Martin Södergård, Västerås, Sweden, assignor to Allmanna Svenska Elektriska Aktiebolaget, Västerås, Sweden

Filed Feb. 29, 1968, Ser. No. 709,419

Claims priority, application Sweden, Mar. 3, 1967,

3,002/67

Int. Cl. G21c 7/10

U.S. Cl. 176—86

4 Claims



In a light water reactor, a control rod is of cruciform cross-section and runs in a cruciform gap between fuel assemblies arranged in a square, and in a guide tube arranged below the fuel assembly. The guide tube has a somewhat greater diameter than the span of the control rod across the cruciform section. The control rod is joined to an operating device arranged under the guide tube. At the lower end of the control rods the points of the control rod cross are provided with guide plates rounded off at the points facing the guide tube. The guide plates may consist of graphite or be coated on the surface facing the guide tube with a hard material such as stellite. The rounding off of the guide plates has a slightly smaller radius of curvature than the guide tube.

3,574,060

LIQUID SAFETY ROD SYSTEM FOR NUCLEAR REACTORS

Sergio Galli de Paratesi, Varese, and Alberto Agazzi, Bergamo, Italy, Armando Broggi, Santa Fe, Argentina, and Luciano Ghiurghi, Varese, Italy, assignors to European Atomic Energy Community (Euratom), Brussels, Belgium

Filed Oct. 18, 1968, Ser. No. 768,637

Claims priority, application Belgium, Oct. 26, 1967,

50,094

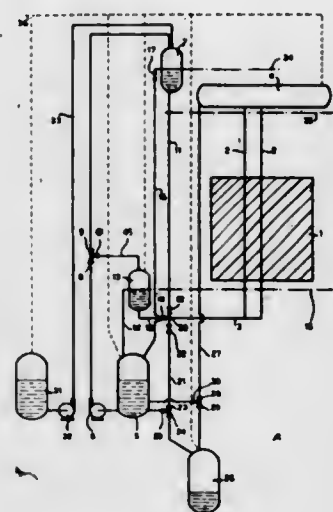
Int. Cl. G21c 7/22

U.S. Cl. 176—86

7 Claims

A liquid safety rod system for a nuclear reactor comprising a plurality of tubes extending through a reactor core and connected to a lower collector, upper and lower poison solution reservoirs, conduit means including a

pump connecting the upper and lower reservoirs for transferring poison solution from the lower to the upper reservoir, a valve controlled conduit connecting the upper reservoir and the lower collector to permit the flow of poison solution from the upper reservoir through the col-



lector and into the tubes in an emergency situation; and further including a washing circuit comprising essentially a washing-liquid reservoir, a pump and a washing-residue reservoir operatively connected to permit the safety-rod tubes to be cleansed of poison solution.

3,574,061

PROCESS FOR PREPARING L-ORNITHINE BY FERMENTATION

Katsunobu Tanaka, Kazuo Ohshima, and Yoh Tokoro, Tokyo, Japan, assignors to Kyowa Hakko Kogyo Kabushiki Kaisha, Tokyo-to, Japan

No Drawing. Filed Oct. 3, 1967, Ser. No. 672,434

Claims priority, application Japan, Oct. 6, 1966,

41/65,426

Int. Cl. C21b 1/00

U.S. Cl. 195—28

15 Claims

The present invention is directed to a process for the preparation of L-ornithine. The compound is prepared by culturing an organism capable of producing L-ornithine in a medium where a hydrocarbon, and in particular a paraffin, is used as the main carbon source. The medium, in addition, contains a nitrogen source and the micro-organism is one which is derived from a nutrient requiring strain and preferably one which is either an arginine or a citrulline requiring mutant strain. These strains are generally obtained from *Arthrobacter paraffineus*, *Corynebacterium hydrocarboclastus*, *Brevibacterium ketoglutamicum* and *Arthrobacter roseoparaffinus*. The culture is preferably performed at a temperature of 25 to 40° C. at a neutral pH. After fermentation is complete the L-ornithine is separated and preferably purified.

3,574,062

METHOD OF IMMOBILIZING ENZYMES AND PRODUCT

Takuya R. Sato, Pasadena, Calif., assignor to Beckman Instruments, Inc., Fullerton, Calif.

No Drawing. Filed Apr. 20, 1967, Ser. No. 632,169

Int. Cl. C07g 7/02; C08h 1/00, 7/00

U.S. Cl. 195—63

6 Claims

A method of immobilizing enzymes by reacting an enzyme with a diazo-protein substrate such as diazo-protein polyurethane. The substrate may be prepared by diazotizing a polyester polyurethane and coupling a protein to the diazotized polyurethane. The immobilized enzyme may be used as a catalyst in analytical procedures and the substrate is preferably a reticulated structure.

3,574,063

METHOD FOR BACTERIA COUNTING AND ANTIBIOTIC SENSITIVITY ASSAY

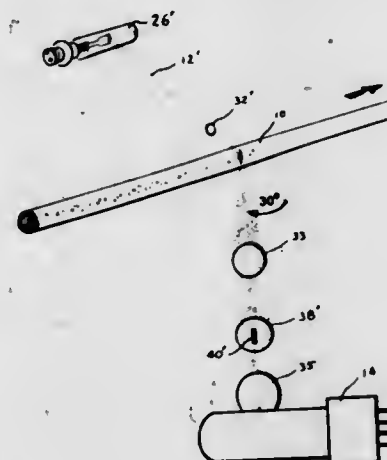
Robert L. Bowman, Bethesda, Md., assignor to the United States of America as represented by the Secretary of Health, Education, and Welfare

Filed June 26, 1967, Ser. No. 648,735

Int. Cl. C12k 1/00

U.S. Cl. 195—103.5

6 Claims



The disclosure relates to a method for counting bacterial colonies quickly and simply and for assaying the antibiotic sensitivity of such bacteria. Organisms are cultured in an extremely narrow channel and counting of the colonies is based on the scattering from a light beam focused into the narrow channel.

3,574,064

AUTOMATED BIOLOGICAL REACTION INSTRUMENT

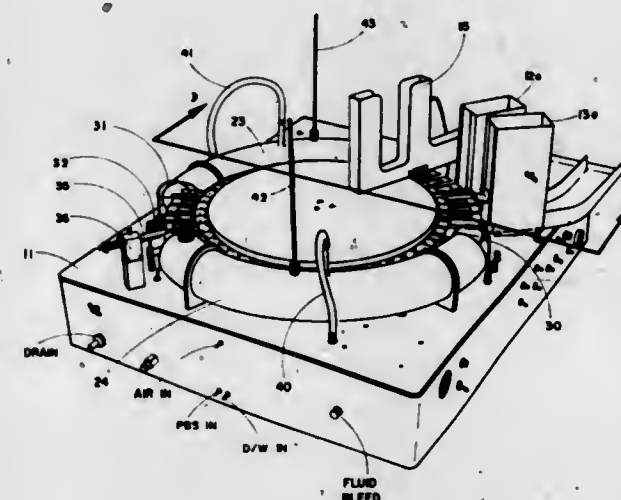
Gerald F. Binnings, Arcadia, Theodore N. Meyer, Westminster, and Mel J. Riley, Covina, Calif., assignors to Aerojet-General Corporation, El Monte, Calif.

Filed May 9, 1968, Ser. No. 727,859

Int. Cl. C12k 1/10

U.S. Cl. 195—127

7 Claims



This disclosure describes apparatus for automatically processing special laboratory slides carrying specific antigenic material with samples of blood serum taken from patients to detect the presence of specific antibodies in the serum as an indication of previous exposure to the antigen. Specifically, the disclosure describes the apparatus as applied to the fluorescent treponemal antibody (FTA) test for syphilis using an indirect fluorescent antibody technique with *T. pallidum* (nichols strain) as the anti-

gen. The apparatus of the invention includes a mechanism for discharging from a magazine a number of antigen carrying laboratory slides onto a rotating carrier and the dispensing of samples of patients serum onto the laboratory slides. This is followed by the incubation of the slide carrying the previously fixed antigen and the patients serum for several minutes to allow the reaction of any specific antibodies in the serum with the fixed antigen. The apparatus further includes means for washing to remove excess serum, means for injecting a conjugate which reacts with the human serum affixed to the antigen and carries a fluorescent tag such as fluorescein isothiocyanate. The apparatus includes means for further incubation to insure the reaction between the antigen-antibody complex and the conjugate followed by further washing and discharging of the reacted slides to an off-loading mechanism for subsequent examination under a laboratory microscope.

3,574,065

FRACTIONAL CARBONIZATION OF COAL

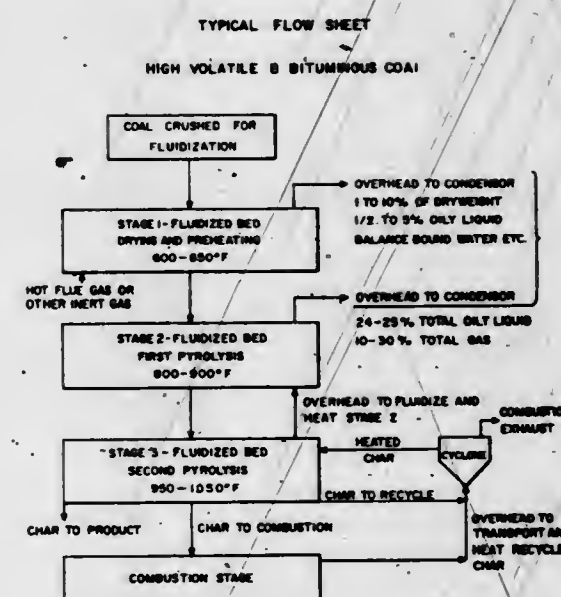
Ralph Tracy Eddinger, Princeton Junction, N.J., Leonard Seglin, New York, N.Y., and John Frederick Jones, Jr., Princeton, N.J., assignors to FMC Corporation, New York, N.Y.

Continuation of application Ser. No. 514,203, Dec. 16, 1965. This application Aug. 5, 1969, Ser. No. 849,591

Int. Cl. C10b 49/10, 49/22

U.S. Cl. 201—12

3 Claims



A process of pyrolyzing coal, by heating it in a first stage fluidized bed in the absence of added oxygen and vapors from coal pyrolysis containing material condensable as oily liquid, at a temperature below the fusion temperature, but sufficiently high to remove some volatiles from the dry coal until about 1-10% of the dry coal are removed overhead as volatiles; in at least a second devolatilizing stage, passing the thus treated coal into at least one other fluidized bed at a temperature above that of the first bed and below the fusion point of the solids fed to that stage, in the absence of oxygen for a time sufficient to nearly remove all of the volatiles from the coal condensable to oily liquids; dividing the nearly devolatilized char into a product stream, a recycle stream and a combustion stream; completely burning the combustion stream, entraining the recycle stream in the hot gases from the combustion stream, separating the entrained recycle char from the hot gases, and recirculating the heated recycle stream into the final devolatilizing stage, and recovering the condensables from the overheads from the first stage and all of the devolatilizing stages.

3,574,066 MULTISTAGE EVAPORATION UNIT AND GAS-LIQUID DIRECT CONTACT DISTILLATION APPARATUS

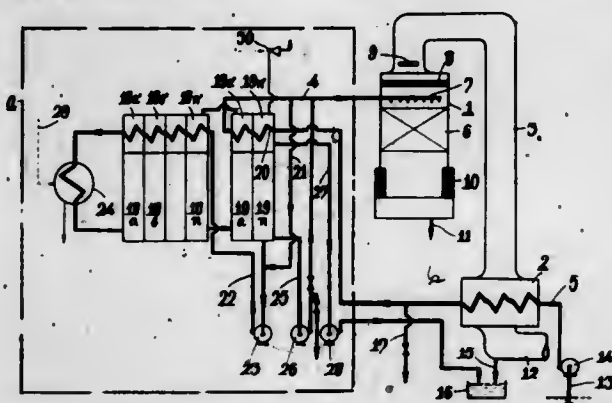
Jiro Kijima and Toshio Bekki, Yokohama, Japan, assignors to Kurita Industrial Company, Limited, Osaka, Japan

Filed Nov. 4, 1968, Ser. No. 773,210
Claims priority, application Japan, Feb. 19, 1968, 43/10,223

Int. Cl. B01d 3/06

U.S. Cl. 202-173

1 Claim



A water purification apparatus comprising a gas-liquid contacting device for bringing hot water into contact with a gas to evaporate a part of said water, a water vapor condenser, means to introduce the water vapor-containing gas discharging from said gas-liquid contacting device into said water vapor condenser, means to feed hot water into said gas-liquid contacting device, and means in said water vapor condenser to cool the steam.

3,574,067 ELECTROFORMING METALS AND ELECTROLYTES THEREFOR

Peter Spiro, London, England, assignor to S. A. Vickers Limited, London, England

No Drawing. Continuation-in-part of application Ser. No. 530,779, Mar. 1, 1966. This application Nov. 24, 1969, Ser. No. 879,528

Claims priority, application Great Britain, Dec. 7, 1965, 51,851/65

Int. Cl. C23b 5/02, 5/08, 7/00

U.S. Cl. 204-3

5 Claims

In an electrolytic bath for use in the electro-forming of a base metal such as iron, cobalt, nickel, tin, zinc, manganese and copper, or a combination of two or more of these, the improvement which comprises that the bath contains at least one acetylenic compound devoid of amino groups in an amount within the range of 0.1 to 10 g./l., at least one α,β -unsaturated aromatic compound selected from the group consisting of cinnamic acid, cinnamaldehyde, 1,2-benzopyrone and phthalylacrylic acid, in an amount within the range of 0.1 to 50 g./l. and at least one difunctional aromatic acid containing in the molecule at least one carboxylic acid group and at least one sulphonic acid group and selected from the group consisting of sulphophthalic acid, sulphoisophthalic acid and sulphosalicylic acid, the difunctional aromatic acid being present in the bath in an amount within the range of 0.1 to 100 g./l.

3,574,068 PROCESS FOR PREPARING A METAL PLATE RECEPTIVE TO A DECORATIVE METAL DEPOSIT

Hyman Chessin, Birmingham, Mich., assignor to M & T Chemicals Inc., New York, N.Y.

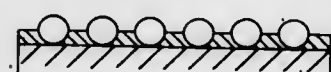
Filed Nov. 23, 1965, Ser. No. 509,267
Int. Cl. C23b 5/01, 7/00; C23f 17/00

U.S. Cl. 204-16

20 Claims

In accordance with certain of its aspects, this invention relates to novel compositions and to the process for pre-

paring a metal plate receptive to a decorative noble metal deposit, characterized by the presence of microporous areas and microcracked areas over substantially the entire surface of said noble metal plate, which comprises affixing to a basis material bearing a conductive metal surface a stratum of particles having a particle size of about 0.05-15 microns and a density on said conductive metal



surface of about 100-5,000,000 particles/cm², and depositing in said stratum of particles a conductive metal layer having an effective thickness less than the maximum thickness of said stratum of particles thereby forming a matrix wherein said particles are retained affixed to said surface in fixed position in said conductive metal layer, and at least some of said particles intercept the surface of said conductive metal layer.

3,574,069 METHOD OF FORMING A PROTECTIVE COATING ON A FERROUS SURFACE

Carlton E. Roberts, Bethlehem, and George W. Ward, Nazareth, Pa., assignors to Bethlehem Steel Corporation

Filed Aug. 18, 1967, Ser. No. 661,617

Int. Cl. C23b 5/50

U.S. Cl. 204-29

9 Claims

In a process of forming a protective coating on ferrous articles, such as steel strip, the article is treated in an aqueous electroplating bath of chromic acid, a silicofluoride and sulfate. The strip, acting as cathode, is subjected to the electrolytic action of the bath at a relatively high current density for a period sufficient to deposit a thin film of chromium thereon. The strip is then given a similar treatment in a less concentrated bath of the same chemical composition as that of the first bath.

3,574,070

METAL PLATING OVER PLASTIC

Camille Sahely, Wellesley Hills, Mass., assignor to Shipley Company, Inc., Newton, Mass.

No Drawing. Filed May 11, 1967, Ser. No. 637,644

Int. Cl. C23b 5/60

U.S. Cl. 204-30

31 Claims

A process for metal plating over plastics characterized by a preliminary treatment step comprising contact of a plastic surface with an emulsion having a first phase that is a solvent for the plastic and a second phase that is emulsified with the first phase and a non-solvent for the plastic. The treatment step with emulsion is preferably used prior to surface conversion of the plastic part and promotes increased bond strength between the plastic substrate and metal coating.

3,574,071

FLUORINE-CONTAINING RESIN COATED ARTICLES

Charles P. Covino, Upper Montclair, N.J., assignor to General Magnaplate Corporation, Linden, N.J.

Continuation-in-part of applications Ser. No. 384,615, July 23, 1964, and Ser. No. 554,353, June 1, 1966. This application Mar. 29, 1968, Ser. No. 717,278

Int. Cl. C23b 9/02

U.S. Cl. 204-38

16 Claims

A process for preparing a composite aluminum article having an inner layer of aluminum, an intermediate integral layer of aluminum oxide, and an outer layer of a fluorine-containing resinous material comprising anodically

oxidizing a clean aluminum metal in an aqueous bath at a temperature between 25° F. and 80° F., said bath containing between 4% and 7.34% of sulfuric acid and between 0.5 and 3% of a carboxylic acid, while passing air through said aqueous bath to form an oxide coating on



the aluminum metal. The oxide coated aluminum is then rinsed and immersed in a liquid aqueous impregnation bath containing fluorine-containing hydrocarbon polymer resin particles to form an outer resin coating at least about 0.0001 inch thick.

3,574,072 POLYMERIZATION OF HETEROCYCLIC COMPOUNDS

James J. Louvar, Evanston, Ill., assignor to Universal Oil Products Company, Des Plaines, Ill.

No Drawing. Filed Apr. 3, 1968, Ser. No. 718,334

Int. Cl. C07b 29/06; B01k 1/00

U.S. Cl. 204-72

7 Claims

Heterocyclic compounds containing both 5- and 6-membered rings such as furan, thiophene, pyrrole, pyran, thio-pyran, and pyridine are polymerized by subjecting the compounds to electrolysis in the presence of an organic solvent, a specific example being the electrolysis of furan in acetic acid to form polyfuran.

3,574,073 METHOD FOR ADJUSTING ELECTRODES

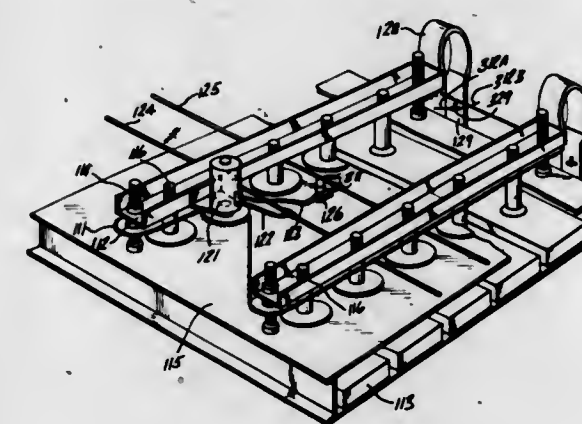
Richard W. Ralston, Jr., Cleveland, Tenn., assignor to Olin Corporation

Filed Sept. 4, 1968, Ser. No. 757,437

Int. Cl. C01d 1/14; B01k 3/00

U.S. Cl. 204-99

8 Claims



Anodes are adjusted in a mercury cathode electrolytic cell using hydraulic means for raising and lowering the anodes where the hydraulic means is actuated (1) by using the changes in flux of the magnetic field generated by the electrical flow in the conductors supplying the anodes to prevent or correct short circuits and (2) electrically controlling the operation of the hydraulic system.

3,574,074 SURFACE TREATED PLATINIZED ANODES

Rajendra Paul Khara, Woodbridge, Conn., assignor to Olin Corporation

No Drawing. Filed July 23, 1968, Ser. No. 746,770

Int. Cl. C01b 7/06; C23f; B01k 3/06

U.S. Cl. 204-128

4 Claims

Power costs in the electrolytic production of chlorine using platinum metal surfaced anodes are reduced by first subjecting the anodes as electrodes to the action of alternating current in an electrolytic solution.

3,574,075 METHOD OF PRODUCING AN ELECTRODE FOR USE IN ELECTRO MACHINING

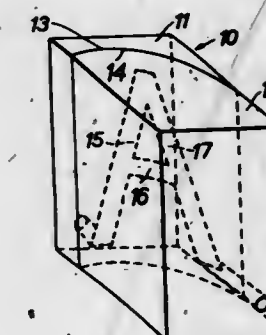
George O. Eccles, Thornton-in-Craven, Skipton, England, assignor to Rolls-Royce Limited, Derby, England

Filed Mar. 21, 1969, Ser. No. 809,257

Int. Cl. B23p 1/00; C23b 7/02

U.S. Cl. 204-143

8 Claims



An electrode for use in electromachining is made by producing a former having a surface corresponding to the working surface of the electrode to be produced, electrodepositing a metallic layer onto the said surface of the former, and effecting relative separation between the former and the said layer.

3,574,076 CONVERSION OF UNSATURATED HYDROCARBONS IN THE PRESENCE OF A CATALYST AND ULTRAVIOLET RADIATION

Francis William Kirsch, Wayne, Pa., assignor to Sun Oil Company, Philadelphia, Pa.

No Drawing. Filed Oct. 27, 1967, Ser. No. 678,544

Int. Cl. B01j 1/10

U.S. Cl. 204-162

9 Claims

A method of increasing the conversion of reactants when reacting hydrocarbons such as aromatics, alkenes, aryl alkenes, etc., which absorb ultraviolet radiation; said method consists of subjecting the reactants to the influence of a Group VIII metal supported on a refractory inorganic oxide carrier and ultraviolet radiation.

3,574,077 EVAPORATION-ELECTRODIALYSIS PROCESS FOR PRODUCING FRESH WATER FROM BRINE

Yoshio Tsunoda, Tokyo, and Leo Ehara and Hideo Kawate, Onahama, Japan, assignors to Asahi Kasei Kabushiki Kaisha, Osaka, Japan

Filed Aug. 13, 1969, Ser. No. 849,668

Claims priority, application Japan, Aug. 17, 1968, 43/58,240, 43/58,241; Nov. 30, 1968, 43/87,392, 43/87,393

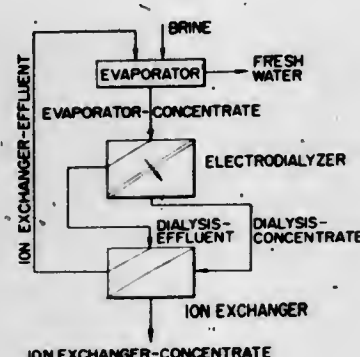
Int. Cl. B01d 13/02

U.S. Cl. 204-180

11 Claims

A process for producing fresh water efficiently by passing the brine through a system consisting of an evapo-

rator and an electrodialyzer using ion exchange membranes (hereinafter referred to as an electrodialyzer)



and, if required, an ion exchanger while preventing the formation of scale in the evaporator.

3,574,078

COMPOSITE ELECTRODE-DIFFUSION MEDIUM FOR ELECTROCHEMICAL SENSORS

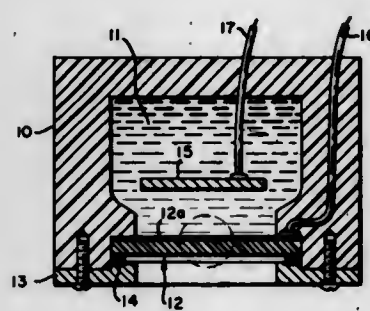
John P. Hynes and Harold C. Lofgren, Minneapolis, Minn., assignors to Honeywell Inc., Minneapolis, Minn.

Filed Nov. 18, 1968, Ser. No. 776,360

Int. Cl. G01n 27/46

U.S. Cl. 204-195

5 Claims



A composite electrode-diffusion medium, for use with electrochemical cells particularly of the polarographic type such as those used for oxygen sensing, consisting of a laminated permeable diffusion medium having an electrode body carried by one of the laminations.

3,574,079

APPARATUS FOR OXYGEN DETERMINATION

Laslo Kalman, Zurich, Switzerland, assignor to Gesellschaft zur Förderung der Forschung an der Eidg. Techn. Hochschule, Zurich, Switzerland

Filed Mar. 14, 1969, Ser. No. 807,350

Claims priority, application Switzerland, Mar. 14, 1968, 3,795/68

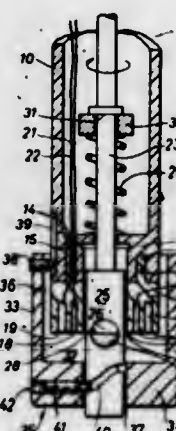
Int. Cl. G01n 27/46

U.S. Cl. 204-195

12 Claims

In an electrochemical apparatus for determining oxygen concentration in a liquid, said apparatus including an anode and a cathode, the electrodes are tubular sections having annular profiles and their surfaces are covered by electrically insulating layers excepting for one frontal area

on each electrode. The electrodes are provided with rotatable abrading means, fitting snugly against the uncovered



areas of the electrodes and against surfaces adjacent said areas, for cleaning said areas and adjacent surfaces.

3,574,080

CORROSION INHIBITING FASTENER MEANS

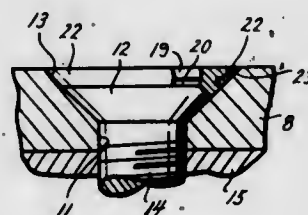
Joseph E. Jones, St. Louis, and David S. Macy, Creve Coeur, Mo., assignors to McDonnell Douglas Corporation, St. Louis, Mo.

Filed Nov. 18, 1966, Ser. No. 595,516

Int. Cl. C23f 13/00

U.S. Cl. 204-197

6 Claims



A fastener for securing two sheets of metal together includes a shank which extends through the sheets and a head positioned at the outermost sheet. The head is provided with a recess into which a ring is fitted, and the ring bears against the outermost sheet adjacent to the outer surface thereof. The ring is formed from a metal higher in the electromotive series of metals than both the metal of the head or the outermost sheet.

3,574,081

CORROSION RESISTANT METALLIC ARTICLES

Michael J. Pryor, Woodbridge, Conn., assignor to Olin Corporation

Filed Jan. 12, 1968, Ser. No. 697,479

Int. Cl. C23f 13/00

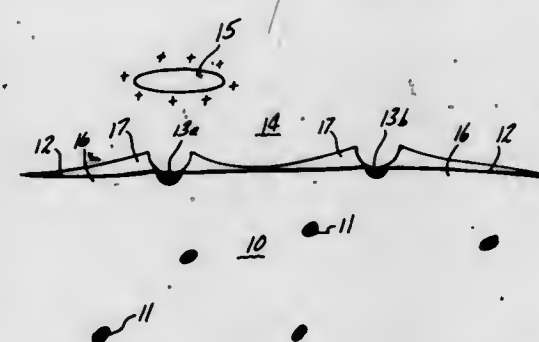
U.S. Cl. 204-197

9 Claims

Inclusion of elemental anode materials into cathodic metallic matrices will give significant improvements in corrosion resistance, provided that the elemental anode will corrode anodically, yield a colloidal or finely dispersed

hydrous metal oxide in the corrosive electrolyte which will assume a positive charge. Such positively charged hydrous

may be thus vertically removed and replaced without otherwise disturbing adjacent cells in the chlor-alkali battery line. A cell washing and treating device, including a



oxides will migrate electrophoretically and deposit protective films on the matrix metal cathode.

3,574,082

CURRENT LEAK PROTECTIVE CIRCUIT

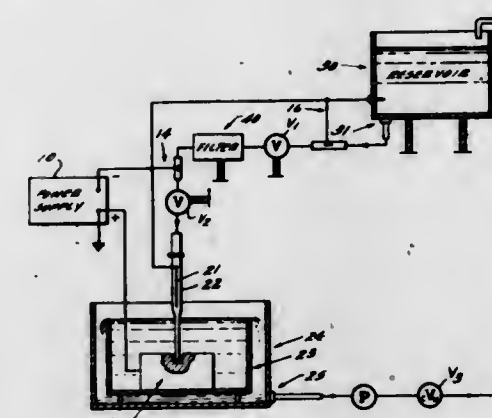
James D. Andrews, Cincinnati, and John L. Bemederfer, Hamilton, Ohio, assignors to General Electric Company

Filed May 29, 1968, Ser. No. 732,974

Int. Cl. B01k 3/00; B23p 1/04

U.S. Cl. 204-228

5 Claims



An electrolytic apparatus for the removal of electrically conductive material from a workpiece utilizing a plurality of current bypass leak paths so placed as to cause short circuit current to bypass certain components of the electrolytic apparatus.

3,574,083

APPARATUS FOR THE PRODUCTION OF CHLORINE IN CHLOR-ALKALI DIAPHRAGM CELLS

Bernard B. Hewitt, 11087 Sawdust Lane, Houston, Tex. 77034

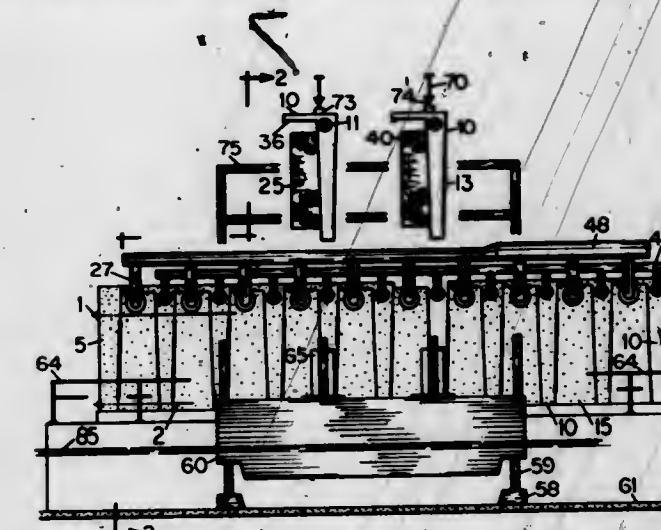
Filed Nov. 3, 1969, Ser. No. 873,157

Int. Cl. B01k 3/00, 3/10

U.S. Cl. 204-258

13 Claims

This invention provides a new and novel arrangement and devices for a chlor-alkali battery wherein the cells are made from prestressed and polymer impregnated concrete for better resistance to chlorine corrosion, and the cells are divided into cathode and anode sections with external electrical contact strips for electrical continuity and arranged so that the cathode sections may be vertically removed from the battery line for replacement or repair of the cathode screen or diaphragm without otherwise disturbing the anode units. The cells, within each battery line, are held together between end members by using corrosion protected steel cables that are stressed and anchored, through each end member. In addition the chlor-alkali battery lines may be arranged between canals so that a straddle-barge device may be utilized to place the cells into the battery line and individual cell units



series of internal spray jets, is incorporated into each cell for treatment to restore permeability of the diaphragms without cell disassembly.

3,574,084

SPECIALIZED HALOGEN GENERATOR FOR PURIFICATION OF WATER

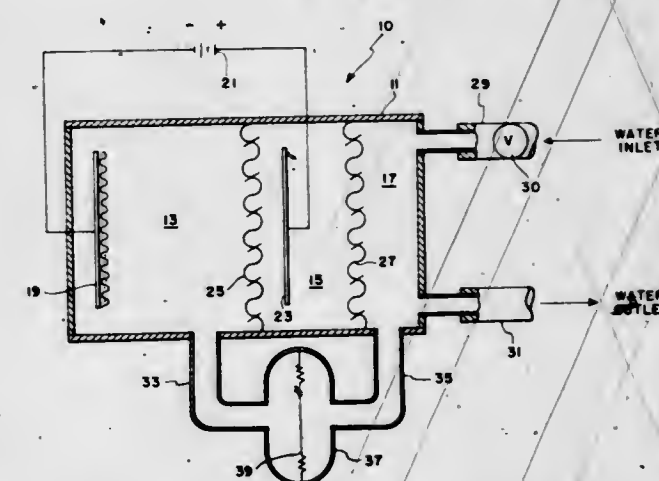
Robert A. Bruce, Newport News, Va., assignor to the United States of America as represented by the Administrator of the National Aeronautics and Space Administration

Filed Oct. 9, 1969, Ser. No. 865,109

Int. Cl. B01k 3/10

U.S. Cl. 204-263

11 Claims



Apparatus for treating water with a specialized halogen gas including a vessel having an electrolyte containing chamber, an anodic chamber and a water treatment chamber with means to remove the halogen from the electrolyte and permit it to be dissolved in water passing through the water treatment chamber.

3,574,085

ELECTRIC TREATER FOR EMULSIONS

William Woelflin, Long Beach, Calif., assignor to Petrolite Corporation, St. Louis, Mo.

Filed Apr. 7, 1969, Ser. No. 814,116

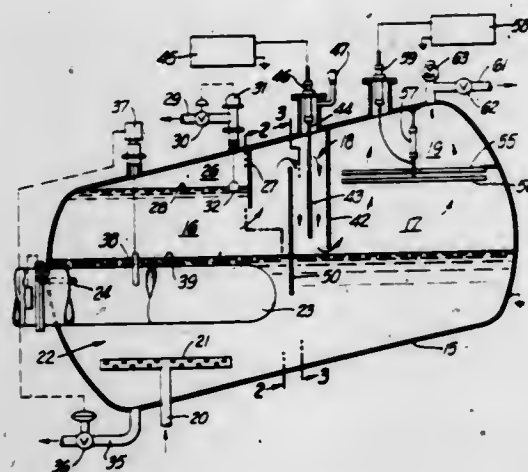
Int. Cl. B03c 5/02; C10g 33/02

U.S. Cl. 204-302

13 Claims

An electric treater with electrodes in a horizontal treating compartment above an emulsion-water interface, with the emulsion tending to flow in a horizontal path

along the interface. A baffle across the interface for directing flow up away from the interface and through or past the electrodes. A tilted horizontal treater. A treater with a



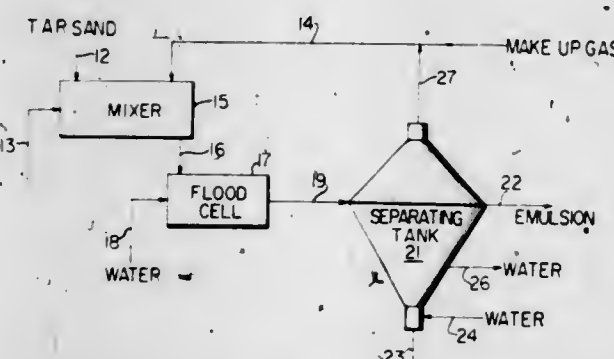
gas separation zone, an electric treating zone, and a settling zone, with a baffle at the treating zone at the emulsion-water interface to control emulsion flow through the treating zone.

3,574,086 RESTORATION OF LIGHT HYDROCARBON GASES TO TAR SAND

Alexander W. Hyndman, Edmonton, Alberta, Canada, assignor to Cities Service Athabasca, Inc., Imperial Oil Limited, Atlantic Richfield Corporation, and Royalite Oil Company, Limited, fractional part interest to each
Filed Aug. 28, 1968, Ser. No. 755,975
Int. Cl. C07g 1/04

U.S. Cl. 208-11

7 Claims



Bitumen is recovered from bituminous sand containing the same by forming a slurry of bituminous sand and water in a gaseous hydrocarbon atmosphere. The aqueous slurry, which contains entrained and dissolved gaseous hydrocarbons, is then introduced into a body of hot water so that bitumen rises to the top in the form of a bituminous emulsion while sand settles to the bottom. The gaseous hydrocarbon atmosphere is preferably maintained throughout the process and between about 0.05 and about 5 wt. percent hydrocarbon gas based upon bitumen content of the slurry is preferably contained in the slurry.

3,574,087 METHOD AND APPARATUS FOR RETORTING OIL SHALES

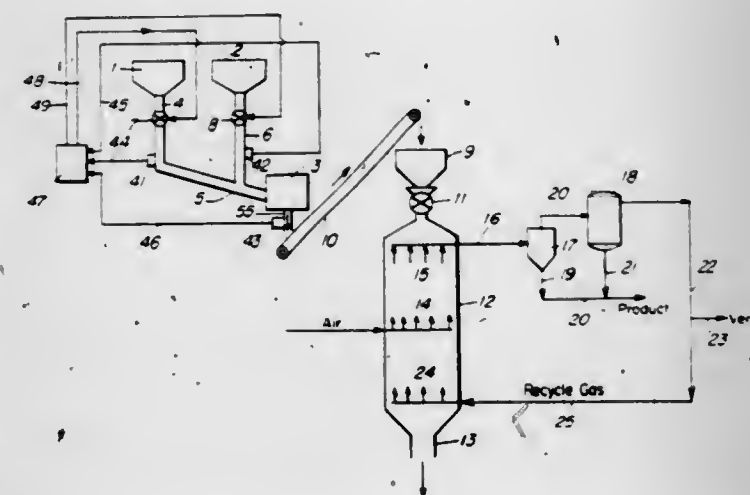
William S. Bergen, Wrentham, N.J., assignor to Mobil Oil Corporation
Filed Oct. 1, 1968, Ser. No. 764,130
Int. Cl. C10g 1/02

U.S. Cl. 208-11

16 Claims

A system for retorting oil shales known as relatively lean and relatively rich oil shales is described wherein the shales are mixed to provide an oil shale having a general or average Fischer assay oil content in the range of from about 15 to about 36 gallons per ton and retorting the

mixture thus formed in a gas combustion retort under conditions to recover higher yields of oil products than



would be obtained when processing each of the different oil shales separately.

3,574,088 USE OF OXYALKYLATED PHENYLENE DIAMINES AS HEAT EXCHANGE ANTI-FOULANTS

Lewis Bsharah and Walter R. May, St. Louis, Mo., assignors to Petrolite Corporation, Wilmington, Del.
No Drawing. Filed Aug. 25, 1969, Ser. No. 852,940
Int. Cl. C10g 9/16; C23f 11/00

U.S. Cl. 208-48

10 Claims

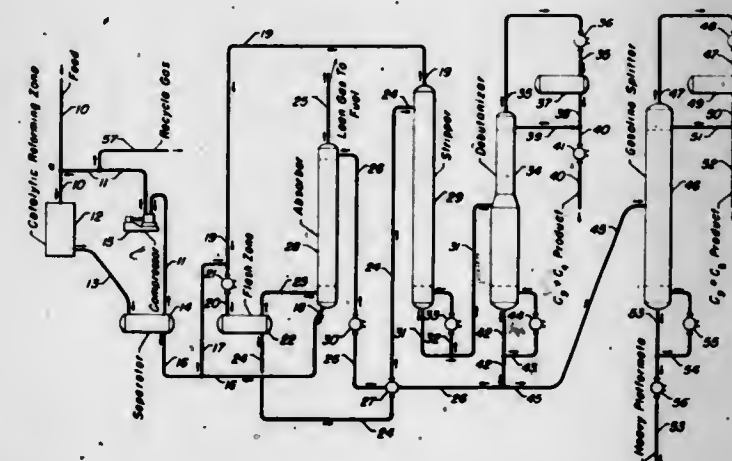
Adhesion of deposits to heat exchange metal surfaces in processing hydrocarbons at elevated temperatures (i.e. from about 150°-1000° F. or higher) is inhibited by an anti-fouling amount of an oxyalkylated N-substituted phenylene diamine, as exemplified by oxyalkylated N-phenyl-p-phenylene diamine, oxyalkylated N,N'-diphenyl-p-phenylene diamine and oxyalkylated N-cyclohexyl-N'-phenyl-p-phenylene diamine. Other additives can also be employed in conjunction with the above anti-foulants.

3,574,089 GAS SEPARATION FROM HYDROGEN CONTAINING HYDROCARBON EFFLUENT

James T. Forbes, Arlington Heights, Ill., assignor to Universal Oil Products Company, Des Plaines, Ill.
Filed Jan. 27, 1969, Ser. No. 794,088
Int. Cl. C10g 5/04

U.S. Cl. 208-101

2 Claims



Method for separating the effluent from a catalytic reforming zone utilizing absorption and fractionation tech-

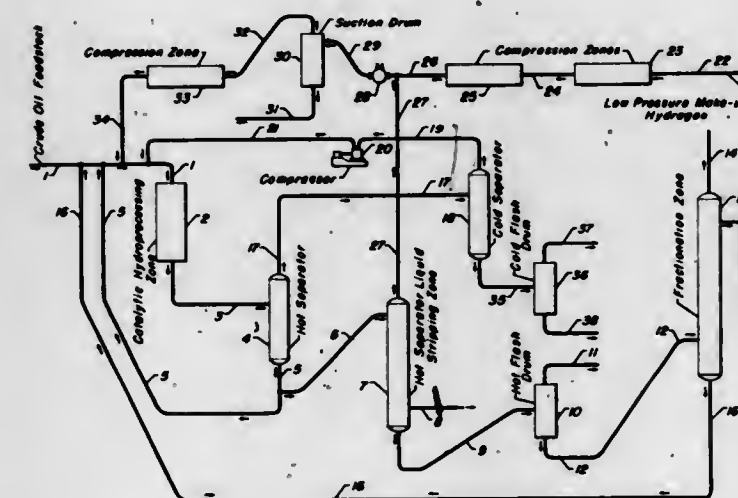
niques. The inventive processing scheme permits high recovery of normally gaseous hydrocarbons as well as reformate.

3,574,090 RECOVERY AND REUSE OF HYDROGEN FROM A CATALYTIC HYDROPROCESSING PROCESS

Newt M. Hallman, Mount Prospect, Ill., assignor to Universal Oil Products Company, Des Plaines, Ill.
Filed Jan. 31, 1969, Ser. No. 795,599
Int. Cl. C10g 13/00

U.S. Cl. 208-108

9 Claims



Hydrogen is recovered from a normally liquid hydrocarbon fraction produced by the catalytic hydroprocessing of a petroleum crude oil feedstock and reused in the catalytic hydroprocessing unit by utilizing a hot separator liquid stripping zone, high pressure superheated steam as the stripping medium and an admixing step wherein the recovered stripped hydrogen is admixed at an intermediate pressure in a compression zone with an added low pressure makeup hydrogen stream.

3,574,091 CONTINUOUS, LOW PRESSURE CATALYTIC REFORMING PROCESS WITH SULFUR INCLUSION AND WATER EXCLUSION

John C. Hayes, Palatine, Ill., assignor to Universal Oil Products Company, Des Plaines, Ill.
No Drawing. Continuation-in-part of application Ser. No. 560,903, June 27, 1966. This application June 24, 1968, Ser. No. 739,201
Int. Cl. C10g 35/08

U.S. Cl. 208-138

10 Claims

A hydrocarbon charge stock boiling in the gasoline range is continuously reformed by contacting, in a substantially water-free reforming zone, the hydrocarbon charge stock, hydrogen and sulfur or a sulfur-containing compound with a reforming catalyst containing a platinum group component at reforming conditions including a pressure of about 50 to 350 p.s.i.g. The sulfur or sulfur-containing compound is continuously introduced into the reforming zone, both during start-up and thereafter, in an amount, calculated as elemental sulfur, equivalent to about 300 to about 3000 wt. p.p.m. of the hydrocarbon charge stock. Furthermore, the amount of sulfur or the sulfur-containing compound introduced into the reforming zone is not increased after start-up of the process. Key feature of the resulting process is the ability to continuously operate under this low pressure condition in a stable fashion for a catalyst life of at least 15 barrels of charge per pound of catalyst without catalyst regeneration.

3,574,092 HYDROCARBON CONVERSION PROCESS AND CATALYST THEREFOR

Roy T. Mitsche, Island Lake, Ill., assignor to Universal Oil Products Company, Des Plaines, Ill.
No Drawing. Filed Feb. 10, 1969, Ser. No. 798,124
Int. Cl. G10g 35/08; B01j 11/08

U.S. Cl. 208-139

12 Claims

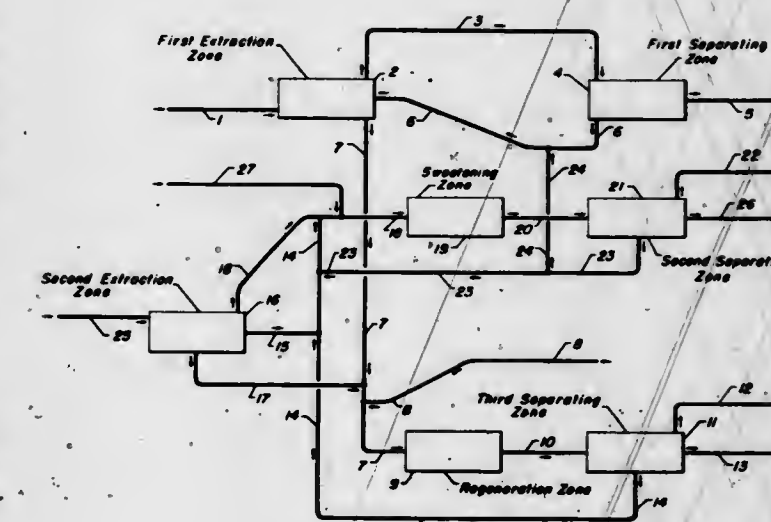
A catalytic composite comprising a platinum group metallic component and a technetium component combined with a carrier material containing alumina and a finely divided crystalline aluminosilicate, is disclosed. A specific example of the catalytic composites disclosed herein is a combination of about 0.01 to 1.0 wt. percent platinum and about 0.01 to 1.0 wt. percent technetium with a gamma alumina carrier material having 0.5 to 20 wt. percent of the hydrogen form of mordenite uniformly distributed therethrough. Principal utility of these catalytic composites is, broadly, in the field of processes for the conversion of hydrocarbons and, more particularly, in a process for the production of LPG and a high octane reformate.

3,574,093 COMBINATION PROCESS FOR TREATMENT OF HYDROCARBON STREAMS CONTAINING MERCAPTO COMPOUNDS

James R. Strong, Evanston, Ill., assignor to Universal Oil Products Company, Des Plaines, Ill.
Filed Jan. 22, 1969, Ser. No. 793,101
Int. Cl. C10g 19/02, 19/08

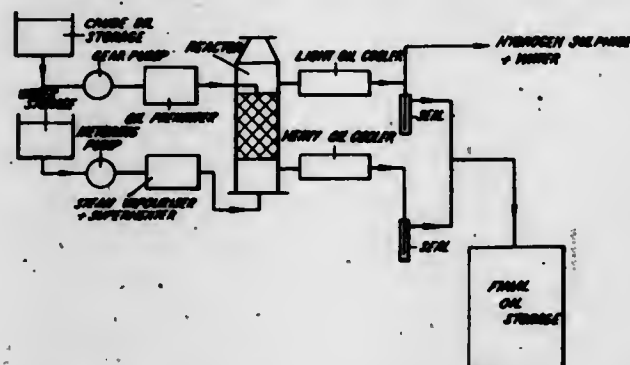
U.S. Cl. 208-206

6 Claims



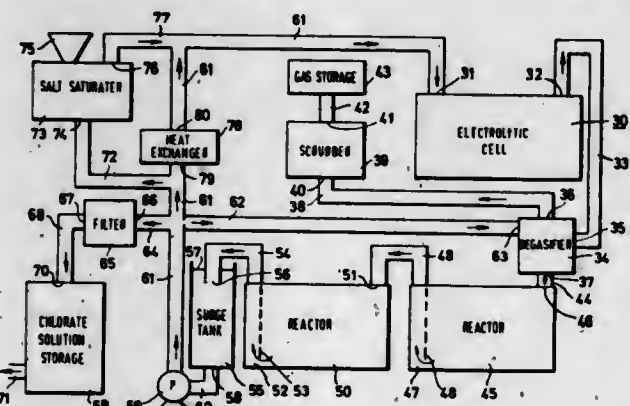
A first hydrocarbon stream containing a mercapto compound is treated to remove mercapto compounds therefrom without adding any substantial amounts of undesired disulfide compounds thereto and a second hydrocarbon stream containing a mercapto compound is simultaneously sweetened by a combination process involving: a first extraction step which is performed on the first hydrocarbon stream with a disulfide-free alkaline stream, a second extraction step which is performed on the second hydrocarbon stream, an alkaline stream regeneration step, and a combination sweetening and disulfide-extraction step which is performed on the second hydrocarbon stream in order to sweeten same while simultaneously preparing the disulfide-free alkaline stream for use in the first extraction step. Key feature of the resulting process is the use of the sweetening step to remove mercapto and disulfide compounds from a portion of the regenerated alkaline stream so that the amount of re-entry disulfide compounds that are carried back into the first extraction step by the alkaline stream is held to a minimal level.

3,574,094
DESULPHIDING A LIQUID WITH STEAM AND URANIUM OXIDE CATALYST
 Thomas Nicklin, Manchester, and Frederick Farrington, Sale, England, assignors to The Gas Council, London, England
 Filed June 20, 1968, Ser. No. 738,456
 Int. Cl. C10g 23/14
 U.S. Cl. 208-214 5 Claims



Desulphiding of liquid petroleum fraction is effected by contacting the fraction in the liquid state with steam and with a catalyst of uranoso-uranic oxide and/or uranium trioxide. The steam and liquid fraction are passed co-currently upward or counter-currently through the catalyst in the reactor vessel. Alternately the liquid fraction may pass into the reactor at the level of the catalyst whilst steam is passed upward through the catalyst. A vaporized mixture is removed from an upper portion of the reactor while a desulphurized liquid fraction is removed from the lower part of the reactor.

3,574,095
CHLORATE SYSTEM
 Göthe O. Westerlund, 5041 Cypress St., Vancouver, British Columbia, Canada
 Filed Aug. 30, 1968, Ser. No. 759,258
 Int. Cl. B01k 1/00; C01b 11/26
 U.S. Cl. 204-236 38 Claims

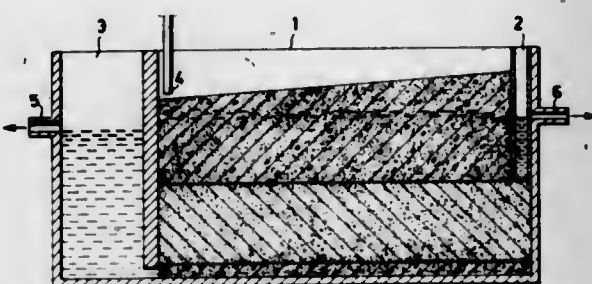


Novel electrolysis systems of the closed loop variety are provided in which novel degasifier means are provided in the closed loop and which are so constructed and arranged as to remove at least 99% of the entrained and/or entrapped gaseous products of electrolysis from the liquid primary products of electrolysis, in combination with novel reactor means, surge tank means and liquid temperature control varying means.

3,574,096
PROCESS AND APPARATUS FOR THE SEPARATION OF OIL FROM AN OIL-WATER MIXTURE
 Bo R. Carlstedt, Grastigen 1, Saltsjöbaden, Sweden
 Filed Mar. 24, 1969, Ser. No. 809,907
 Claims priority, application Sweden, Apr. 8, 1968, 4,722/68
 Int. Cl. B01d 17/04
 U.S. Cl. 210-23 5 Claims

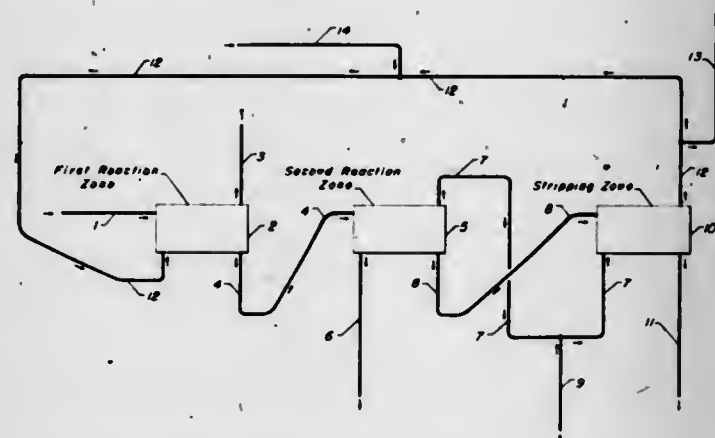
A process and an apparatus for the separation of oil from an oil-water mixture comprising introducing an oil-

water mixture to a surface region of a layer of grainy oil-resistant material housed in a tank, flowing an aqueous phase substantially vertically down through the layer of



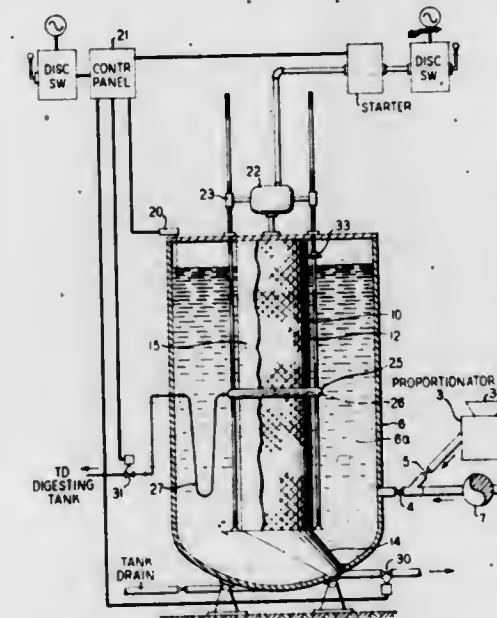
said material, maintaining a ground water zero-pressure level in said layer and finally collecting a substantially pure oil phase at a place in said layer situated at a distance from the region where the mixture has been introduced.

3,574,097
TREATING A WATER STREAM CONTAINING A WATER-SOLUBLE SULFITE COMPOUND
 Peter Urban, Northbrook, Ill., assignor to Universal Oil Products Company, Des Plaines, Ill.
 Filed Feb. 9, 1970, Ser. No. 9,894
 Int. Cl. C02b 1/18
 U.S. Cl. 210-61 21 Claims



A water stream containing a water-soluble sulfite compound is treated in order to reduce its total sulfur content while minimizing the formation of sulfate by-products by the steps of: (a) converting the sulfite compound contained in the water stream to the corresponding thiosulfate compound; (b) reacting the resulting thiosulfate compound with carbon monoxide at reduction conditions selected to produce the corresponding sulfide compound; and thereafter (c) stripping hydrogen sulfide from the effluent stream from step (b) to form a substantially sulfate-free treated water stream which is substantially reduced in total sulfur content relative to the input water stream. Principal utility of this treatment procedure is associated with the regeneration of a sulfite-containing absorbent stream which is commonly produced by contacting a flue gas stream containing sulfur dioxide with a suitable aqueous absorbent stream containing an alkaline reagent. The treated water stream produced by the present method can then be reused in the absorption process or discharged into a suitable sewer without causing pollution problems. Key features of this method involves the selective conversion of the sulfite compound to the corresponding thiosulfate compound, the subsequent reduction of the thiosulfate compound to the corresponding sulfide compound in a highly efficient, economic and selective manner, and the minimization of undesired sulfate by-products during both of these conversion steps.

3,574,098
PROCESS OF CLARIFYING A LIQUID USING SCORCHED NEWSPRINT
 Salem Boorujy, Chatham, N.J., assignor to Environmental Sciences, Inc., Berkeley Heights, N.J.
 Filed Sept. 5, 1969, Ser. No. 855,626
 Int. Cl. B01d 37/02
 U.S. Cl. 210-62 6 Claims



Apparatus and method for the tertiary treatment of sewage with finely ground, de-oiled and scorched waste newsprint to remove from such sewage suspended particles such as those having a biochemical oxygen demand is disclosed together with the method of preparing the waste newsprint for use in such treatment.

3,574,099
STOPPING LOST CIRCULATION IN WELL DRILLING
 John N. Ryals, Duane B. Anderson, and Billy V. Randall, Tulsa, Okla., assignors to Pan American Petroleum Corporation, Tulsa, Okla.
 Filed July 6, 1967, Ser. No. 651,943
 Int. Cl. C10m 3/04, 1/08, 3/14
 U.S. Cl. 252-8.5 13 Claims

A mixture of asbestos fibers and granular particles within critical limits is used to stop loss of drilling fluid to drilled formations.

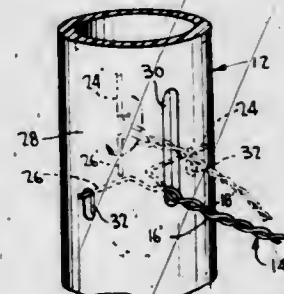
3,574,100
WATER-SOLUBLE LUBRICATING AGENTS FOR CONTINUOUSLY MOVING CONVEYOR SYSTEMS
 Clayton A. Wetmore, Skaneateles, N.Y., assignor to Cowles Chemical Company, Cleveland, Ohio
 No Drawing, Filed Jan. 10, 1968, Ser. No. 696,689
 Int. Cl. C10m 1/24, 1/26, 1/46
 U.S. Cl. 252-32.5 1 Claim

Lubricating compositions, which exhibit controlled foaming and are useful over a wide range of water hardness, are disclosed. The lubricating compositions are useful in lubricating and cleaning conveyor belts, chains and the like systems. The lubricating compositions preferably contain an ampholyte, which is preferably a derivative of a fatty primary amine and a salt of a phosphate ester of an oleyl alcohol ethoxylate. Methods for the use of these compositions are also disclosed.

3,574,101
ACYLATING AGENTS, THEIR SALTS, AND LUBRICANTS AND FUELS CONTAINING THE SAME
 John P. Murphy, Willoughby, Ohio, assignor to The Lubrizol Corporation, Wickliffe, Ohio
 No Drawing, Filed Apr. 29, 1968, Ser. No. 725,189
 Int. Cl. C10m 1/40 16 Claims

Oil-soluble carboxylic acid acylating agents are prepared by reacting a high molecular weight mono- or polycarboxylic acid with a sulfonating agent. The resulting acylating agents can be converted to acidic, neutral, or basic metal salts. Both the novel acylating agents and the salts are useful additives for lubricants and fuels and as intermediates for the preparation of other useful lubricant and fuel additives, particularly high molecular weight oil-soluble acylated nitrogen compositions and esters. The latter are prepared by reacting the acylating agents with, for example, alkylene polyamines or mono- or polyhydric alcohols.

3,574,102
COLLAPSIBLE ARTIFICIAL TREE CONSTRUCTION ADAPTED FOR CHRISTMAS DECORATION
 Terry Hermanson, New York, N.Y., assignor to Mr. Christmas, Inc., New York, N.Y.
 Filed Feb. 18, 1969, Ser. No. 800,218
 Int. Cl. A47g 33/08
 U.S. Cl. 161-14 11 Claims

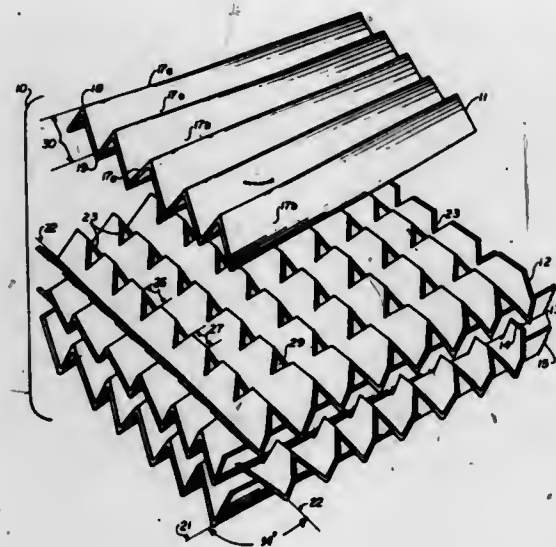


A collapsible artificial tree construction particularly adapted for Christmas decoration in which simulated branches are freely foldable substantially parallel to the simulated tree trunk in one direction and freely pivot to an unfolded laterally extending direction when the artificial tree is to be erected and used, and in which the branches freely gravitate to an unfolded condition whereby insertion of the tree trunk into a tubular container automatically folds the branches upwardly and along the trunk, and removal of the tree from a tubular container results in the branches being automatically unfolded.

3,574,103
LAMINATED CELLULAR MATERIAL FORM
 Aaron Latkin, Livermore, Calif., assignor to the United States of America as represented by the United States Atomic Energy Commission
 Filed Sept. 6, 1968, Ser. No. 757,978
 Int. Cl. B32b 3/28 6 Claims

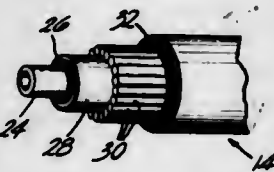
A cellular material form having a core formed of a plurality of corrugated laminar sheet elements, in which apices of corrugations on at least one side of a first sheet are notched transversely to receive and interlock with apices of the corrugations of a second sheet providing a

plurality of interconnected or closed cells in a low density configuration which fitted together under compression over its major area from the first fabric layer by an air space. Initially, the two aforesaid fabric layers are united



is semi-rigid or is rigid and of high strength to weight ratio when appropriately bonded.

3,574,104
GLASS FIBER CONSTRUCTIONAL MEMBER
Albert Medler, Jackson, Mich., assignor to Plastigage Corporation, Jackson, Mich.
Filed Jan. 24, 1968, Ser. No. 700,287
Int. Cl. B32b 5/10, 5/28
U.S. Cl. 161-47 14 Claims



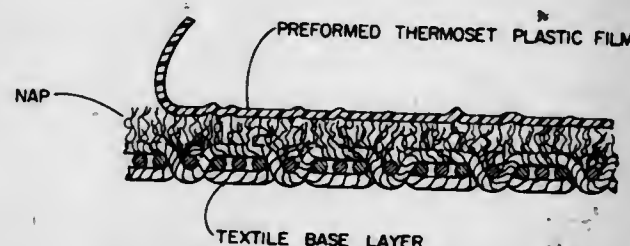
A construction member formed of glass fiber elements impregnated with a hardened resin wherein the member has sufficient strength characteristics to be used in conjunction with other construction members, or may be used separately, such as to form a pole or the like. Superior strength characteristics are obtained by interposing glass fiber rod type elements between glass fiber fabric layers impregnated with a hardened resin wherein the resin bonds the fabric layers to each other and to the rods to produce an all glass fiber and resin member capable of withstanding high bending moment, and lateral forces, without excessive deflection.

3,574,105
LAMINATED STRUCTURE AND METHOD OF MAKING SAME
Charles M. Sachs, Fort Lee, N.J., assignor to International Playtex Corporation
Original application Apr. 18, 1963, Ser. No. 273,988, now Patent No. 3,266,495, dated Aug. 16, 1966. Divided and this application Nov. 2, 1965, Ser. No. 554,227
Int. Cl. B32b 5/18, 3/06, 3/12
U.S. Cl. 161-51 12 Claims

A laminated structure and method of making the same, especially useful for the breast cups of a brassiere, comprising a layer of resilient polyurethane foam permanently bonded to a first porous fabric layer, and a second porous fabric layer attached at its edges to, but separated

by a water-soluble adhesive which dissolves away under a washing treatment.

3,574,106
LEATHER-LIKE LAMINATED SHEET MATERIALS
Lawrence D. Bragg, Jr., Wellesley, Mass., assignor to Plymouth Rubber Company, Inc., Canton, Mass.
Filed Oct. 2, 1968, Ser. No. 764,531
Int. Cl. B32b 3/00; D06a 3/00
U.S. Cl. 161-53 7 Claims

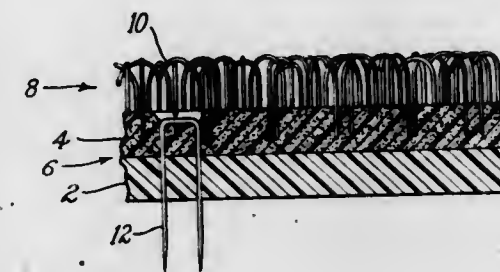


Leather-like laminated sheet materials useful for upholstery, luggage, shoe materials or the like, comprising a fibrous somewhat stretchable textile base layer and an overlying separate, distinct, relatively thin pre-formed thermoset plastic elastic skin layer of uniform thickness mounted thereabove and adhesively anchored to the top ends and upper portions of upwardly extending (preferably napped) fibers of the upper surface of said base layer, the two said opposing layers together providing, to an exceptional degree, a flexible, soft-hand, conformable tough laminate but leaving said thin pre-formed plastic elastic skin layer to a substantial degree free locally elastically to stretch and retract, shift and wrinkle with respect to the underlying base layer, thus simulating grain leather physical characteristics and appearance. In addition, the exposed surface of the pre-formed skin layer of the laminate of the invention may or may not include a surface finish (colored or ornamented or not as preferred) including a slight difference in relief—patterned or not, an additional top finish layer, or both, obtained by casting, embossing, coating or printing, even rotogravure printing, or by incorporating special finely divided, solid ingredients in the skin layer itself to provide a dull, matte, metallic, or gloss surface finish as may be desired for various intended uses.

3,574,107
ARTIFICIAL SKIING SURFACES
Joseph L. Hurka, Boxford, Mass., assignor to USM Corporation, Flemington, N.J.
Filed Apr. 5, 1968, Ser. No. 719,157
Int. Cl. D04b 11/00
U.S. Cl. 161-67 4 Claims

An artificial skiing surface comprising a plurality of layers of material, each layer having properties similar to corresponding layers of natural snow, including a bottom layer of relatively hard material corresponding to

hard packed base snow, an upper layer of upstanding filaments corresponding to surface powder snow, and at least one layer between the bottom and upper layers of relatively sponge-like material corresponding to packed



powder snow. The layers are bonded together to form a laminated artificial skiing surface providing for a skiing experience closely resembling that observed in natural snow.

3,574,108
SOUND DEADENING METAL LAMINATE
Armand Francis Lewis, Fairfield, Conn., assignor to American Cyanamid Company, Stamford, Conn.
No Drawing. Continuation-in-part of abandoned application Ser. No. 506,439, Oct. 21, 1965, which is a continuation-in-part of abandoned application Ser. No. 449,791, Apr. 21, 1965. This application May 13, 1968, Ser. No. 728,780
Int. Cl. B32b 3/10; G10k 11/04
U.S. Cl. 161-113 10 Claims

Metal laminates comprising a thinner outer metal skin layer and a thicker perforated core layer bonded together with a polyurethane resin-based adhesive are disclosed. The core layer can be provided with a second outer metal layer. The core layer has a thickness of 5 to 1000 mils, the outer layers have a thickness of 1 to 100 mils, with the thickness ratio of the core layer to the outer layer being at least 4:1. The open area of the core layer can range from 40 to 70%; the perforations are substantially void of adhesive.

3,574,109
HEAT INSULATING LAMINATE
Yutaka Yoshikawa, 2-24 Hatsudai, Shibuya-ku, Tokyo, Japan
Filed Mar. 27, 1968, Ser. No. 716,471
Claims priority, application Japan, May 9, 1967, 42/28,895
Int. Cl. B32b 3/28
U.S. Cl. 161-128 3 Claims



This invention is to provide a heat insulating material convenient in handling, consisting of an aluminum foil and a thermo-contractile plastics film bonded with each other at scattered points all over the surface of the film in advance as a composite sheet and method of forming a heat insulating layer, which is very easy in working, on an object to be heat-insulated, wherein the composite sheet is fixed to the object and heated to produce wrinkles by the shrinkage of the film and air spaces between the aluminum foil and plastics film.

3,574,110
WIREDRAWING LUBRICATION
Deryk F. G. Hampson, Wantage, and Mervyn R. White, Didcot, England, assignors to Esso Research and Engineering Company
No Drawing. Filed June 18, 1969, Ser. No. 834,555
Claims priority, application Great Britain, June 20, 1968, 29,390/68
Int. Cl. C10m 1/06, 1/38
U.S. Cl. 252-33 13 Claims

A concentrate for use in forming an aqueous wire-drawing lubricant comprising a mixture of sulphated sperm oil and sulphated rapeseed oil. The concentrate may be mechanically dispersed in the water to form the lubricant or a surfactant may be included in the concentrate to aid dispersion.

3,574,111
COMPLEX ALUMINUM-MONOHYDRATED ALKALINE EARTH METAL SALT LUBRICANT
Arnold J. Morway, Clark, N.J., assignor to Esso Research and Engineering Company
No Drawing. Filed Apr. 1, 1968, Ser. No. 717,938
Int. Cl. C10m 5/16
U.S. Cl. 252-36 5 Claims

A grease composition comprising a lubricating oil, a complex aluminum salt and a monohydrated alkaline earth metal salt of a C₂ to C₅ fatty acid displays the properties of good structural stability and excellent load-carrying ability. Specifically, a monohydrated calcium acetate imparts, to a grease containing a complex aluminum salt of aluminum alcoholate, a higher fatty acid and an aromatic acid, structural stability and load carrying properties which could not be obtained by employing an aqueous or multihydrated calcium acetate compound.

3,574,112
CONTINUOUS CASTING PROCESS
John W. Nelson, Lansing, Mich., assignor to Atlantic Richfield Company, New York, N.Y.
No Drawing. Filed Nov. 13, 1968, Ser. No. 775,535
Int. Cl. C10m 1/26, 1/24
U.S. Cl. 252-56 12 Claims

A composition is prepared suitable for lubricating the interface of liquid metal and mold during the continuous casting of metals. This lubricating composition contains an aliphatic or aromatic carboxylic acid having 2 to about 40 carbon atoms, e.g., the acids obtained by hydrolysis of and contained in Crambe and rapeseed oils and mixtures of them, and a mineral lubricating oil having a low carbon residue and low aromatic carbon content which can be prepared by a two-stage catalytic hydrogenation process.

3,574,113
METHOD OF PRODUCING CALCIUM SILICATE TYPE HIGH TEMPERATURE THERMAL INSULATION MATERIALS
Richard F. Shannon, Lancaster, Ohio, assignor to Owens-Corning Fiberglas Corporation
No Drawing. Filed Apr. 18, 1968, Ser. No. 722,201
Int. Cl. C04b 43/04, 15/12
U.S. Cl. 252-62 14 Claims

An improved method of forming high strength high temperature insulation materials wherein an undisturbed tobermorite gel network having the formula



is first formed between dispersed fibers in a slurry and this network is thereafter transformed in an autoclaving process to calcium silicate crystals having a calcia to silica ratio of less than approximately one. The conversion of

the tobermorite gel to crystals is accomplished by the diffusion of silica into the gel network. Free lime and silica are distributed throughout the gel, and during autoclaving, the silica is dissolved by the free lime and made available for diffusion into the crystalline lattice of the tobermorite gel. The tobermorite gel network is set to the fibers by the heating of calcium silicate slurries consisting of either dicalcium silicate, or tricalcium silicate, or both in an abundance of water at temperatures between 160° F. and 212° F. The formation of the gel between the fibers must be complete and must not be disrupted, or dried, prior to the autoclaving process.

3,574,114

FINE GRAIN CERAMIC FERRITES

Frank R. Monforte, Passaic Township, Morris County, N.J., assignor to Bell Telephone Laboratories, Incorporated, Murray Hill, N.J.
No Drawing. Filed Aug. 5, 1968, Ser. No. 750,027
Int. Cl. C04b 35/26

U.S. Cl. 252—62.6 6 Claims
The incorporation of critical amounts of magnesium sulfate as a starting ingredient results in controlled uniform fine grain size in a variety of ceramic materials produced by otherwise conventional calcining and firing. Concerned compositions included magnetic ferrites of a type not ordinarily containing magnesium.

3,574,115

MAGNETIC COMPOSITIONS OF CERIUM MODIFIED CHROMIUM OXIDE AND METHODS OF MANUFACTURE

Robert S. Haines, Boulder, Colo., assignor to International Business Machines Corporation, Armonk, N.Y.
No Drawing. Filed June 30, 1969, Ser. No. 837,870
Int. Cl. C04b 35/12

U.S. Cl. 252—62.51 8 Claims
Cerium modified ferro-magnetic chromium oxide compositions containing 56% to 61.8% chromium and 0.1% to 6% cerium, both combined with oxygen, in the form of finely divided particles. These particles are of tetragonal crystalline structure and have a length-to-width ratio of as much as 22 to 1 and an actual length in the range of about 0.5 to 13 microns. The process of forming cerium modified chromium oxide ferro-magnetic compositions consists of mixing a chromium compound with a source of cerium, and then subjecting the mixture to heat and pressure.

3,574,116

MANGANESE-ZINC FERRITE WITH COBALT ADDITIVE FOR PRODUCING A DESIRED TEMPERATURE COEFFICIENT OF INITIAL PERMEABILITY

Izuru Sugano, Taneaki Okuda, Tsuneo Akashi, Yoshihiro Kenmoku, and Toshiro Tsuji, Tokyo, Japan, assignors to Nippon Electric Company, Limited, Tokyo, Japan
Filed July 23, 1968, Ser. No. 746,837
Claims priority, application Japan, July 25, 1967, 42/48,318

U.S. Cl. 252—62.59 1 Claim
Oxide magnetic materials of the manganese-zinc ferrite type are given improved temperature coefficients of initial permeability by the addition or substitution of a cobalt compound so that the resultant material contains 0.01 to 1.0 mol-percent Co₂O₃. Calcium and silicon compounds to give ultimate mol percents of 0.1 to 0.6 mol percent CaO and 0.01 to 0.07 mol percent SiO₂ respectively may be added to improve the loss characteristics without deleterious effects upon the aforesaid temperature coefficients.

3,574,117

HYDRAULIC FLUID CONTAINING ALKYL 1,2,3,4,7,7-HEXACHLOROBICYCLO-[2.2.1]-HEPT-2-ENE-5-CARBOXYLATE BASE

Bruce W. Hotten, Orinda, Calif., assignor to Chevron Research Company, San Francisco, Calif.
No Drawing. Filed May 21, 1968, Ser. No. 730,955
Int. Cl. C09k 3/00

U.S. Cl. 252—75 17 Claims
Flameproof hydraulic fluid and method of transmitting power employing fluid having as a base an alkyl 1,2,3,4,7,7-hexachlorobicyclo-[2.2.1]-hept-2-ene-5-carboxylate.

3,574,118

AEROSOL FOAM COMPOSITION SUITABLE FOR DISPENSING WHEN WARM

Wayne Otto Baker, East Grand Rapids, Mich., assignor to Colgate-Palmolive Company, New York, N.Y.
No Drawing. Filed July 3, 1967, Ser. No. 650,613
Int. Cl. C11d 17/00

U.S. Cl. 252—90 2 Claims
The present invention relates to aerosol foam compositions and, more particularly, to aerosol foam compositions having improved propellant emulsification, having superior shaving characteristics, having sufficient viscosity when warm to hold individual hairs of a beard erect and providing good heat-transfer properties without excessive loss of moisture.

3,574,119

METHOD OF GRANULATING DETERGENT COMPOSITIONS CONTAINING AN ALKALI METAL METABORATE

Iwao Maruta, Chiba, and Yunosuke Nakagawa, Saitama, Japan, assignors to Kao Soap Co., Ltd., Tokyo, Japan
No Drawing. Filed Jan. 10, 1968, Ser. No. 696,688
Claims priority, application Japan, Feb. 3, 1967, 42/7,000

U.S. Cl. 252—99 4 Claims
A method of forming a granular detergent composition by incorporating a crystalline alkali metal metaborate in a powdered detergent composition, heating the composition and applying a motion to the composition in order to form a granular product which is not apt to agglomerate.

3,574,120

HIGHLY ALKALINE DETERGENT COMPOSITION CONTAINING AN ENZYME DERIVED FROM THERMOPHILIC STREPTOMYCES RECTUS VAR. PROTEOLYTICUS

John M. Siebert, North College Hill, and Robert L. Genster, Cincinnati, Ohio, and Kiyoshi Mizusawa, Eiji Ichishima, and Fumihiko Yoshida, Noda-shi, Japan, assignors to The Procter & Gamble Company, Cincinnati, Ohio
No Drawing. Continuation-in-part of application Ser. No. 777,484, Nov. 20, 1968. This application Aug. 15, 1969, Ser. No. 850,655

U.S. Cl. 252—132 10 Claims
Highly alkaline enzyme-containing detergent composition of matter having a pH in the range of 9.5 to 11 and containing an organic synthetic detergent and an alkaline builder in a weight ratio of 10:1 to 1:30, and from .0025% to 10% by weight of the composition of a proteolytic enzyme derived from thermophilic *Streptomyces rectus* var. *proteolyticus* ATCC 21067. The detergent composition is useful as a laundering composition, a soaking composition and other cleaning applications in which it is desired to have the benefit of enzymatic activity.

3,574,121

PROCESS FOR THE MANUFACTURE OF DETERGENT COMPOSITIONS CONTAINING SODIUM TRIPOLYPHOSPHATE

Karl Merkenich, Hurth, near Cologne, Hellmut Gabler, Knapsack, near Cologne, and Wolf-Dieter Pirig, Euskirchen, Germany, assignors to Knapsack Aktiengesellschaft, Knapsack, near Cologne, Germany
No Drawing. Filed Apr. 26, 1966, Ser. No. 545,256
Int. Cl. C11d 3/06, 11/00, 11/02

U.S. Cl. 252—135 4 Claims
In the process for the manufacture of detergent compositions comprising mixing a slurry of detergent components and an active amount of sodium tripolyphosphate and spray drying the resulting mixture, the improvement comprising mixing said slurry with dry sodium tripolyphosphate, at least a portion of the tripolyphosphate being in its hexahydrate form and spray drying the resulting mixture.

3,574,122

LIQUID DETERGENT COMPOSITIONS

Thomas Aquinas Payne, Jr., Teaneck, and Warren Eric Olson, Verona, N.J., and Samuel Hirsch Cohen, Bronx, N.Y., assignors to Lever Brothers Company, New York, N.Y.
No Drawing. Filed Aug. 18, 1967, Ser. No. 661,522
Int. Cl. C11d 1/12, 3/06

U.S. Cl. 252—137 5 Claims
A phase-stable, heavy-duty, liquid detergent emulsion composition comprising a synthetic organic nonionic detergent and trisodium nitrilotriacetate in an aqueous medium containing a ternary emulsion stabilizer system which is a first stabilizer combination of a hydrolyzed linear copolymer of ethylene and maleic anhydride plus a hydrolyzed cross-linked copolymer of ethylene and maleic anhydride, a second stabilizer which is a hydrotrope and a third stabilizer which is an electrolyte.

3,574,123

PAINT STRIPPING COMPOSITION AND PROCESS

Millard J. Laugle, Cincinnati, Ohio, assignor to W. R. Grace & Co., New York, N.Y.
No Drawing. Filed Apr. 23, 1968, Ser. No. 723,567
Int. Cl. C09d 9/04; C11d 1/28

U.S. Cl. 252—144 10 Claims
Paints are removed from surfaces using a paint stripper comprising from 50 to 90 parts of a chlorinated liquid hydrocarbon solvent, 2 to 15 parts of a lower aliphatic alcohol or their glycol ethers, 0.1 to 15 parts of a lower carboxylic acid, 2 to 30 parts of hydroxybenzenes such as phenols or their derivatives, 2 to 10 parts fatty acid sulfonate or a salt of a fatty amine carboxylic acid having the formula



where R is an aliphatic group having from 8 to 18 carbons and R' is an alkyl group having from 1 to 8 carbons, or alkylbenzene sulfonic acid or salts thereof, from 0.1 to 10 parts of ammonium bifluoride dissolved in from about 3 up to 20 parts of water, and optionally, evaporation retarders and thickeners.

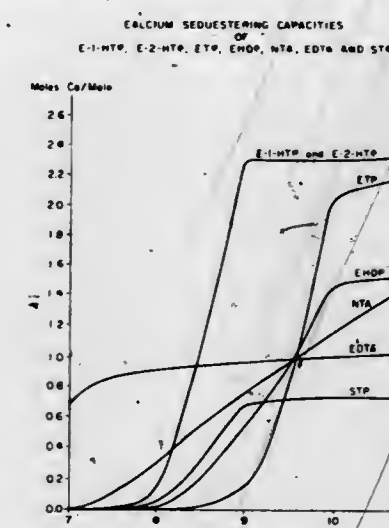
3,574,124

DETERGENT REMOVABLE CLEANING AND POLISHING COMPOSITION

Warren I. Lyness, Mount Healthy, and Lawrence R. Parks, Springfield Township, Hamilton County, Ohio, assignors to The Procter & Gamble Company, Cincinnati, Ohio
Continuation-in-part of application Ser. No. 638,044, May 12, 1967. This application Apr. 12, 1968, Ser. No. 721,037

U.S. Cl. 252—153 9 Claims
A detergent removable, aqueous cleaning and polishing composition comprising a polymer having an acid

number ranging from about 10 to about 60, a water-soluble calcium, magnesium, barium, or strontium compound, a phosphonate chelating agent selected from the group consisting of ethane-1-hydroxy-1,1,2-triphosphonic



acid (E-1-HTP), ethane-2-hydroxy-1,1,2-triphosphonic acid (E-2-HTP), ethane-1-hydroxy-1,1-diphosphonic acid (EHDP) and ethane-1,1,2-triphosphonic acid (ETP), and sufficient volatile base to adjust the pH of the formulation to from about 9 to about 12.

3,574,125

DETERGENT CONCENTRATE

Nicolaas A. I. van Paassen, Rijswijk, Netherlands, assignor to Chem-Y Fabriek van Chemische Producten N.V., Bodegraven, Netherlands
No Drawing. Filed Dec. 26, 1967, Ser. No. 693,169
Claims priority, application Great Britain, Dec. 29, 1966, 58,173/66

U.S. Cl. 252—161 11 Claims
Anionic capillary-active ether sulfates are rendered readily soluble in water at ambient temperatures by adding as an additive an external plasticizer for polymers, such as a phthalate, phosphate or stearate ester, and/or a suitable hydrotropic agent, such as oxyethylation products of higher alcohols or alkyl phenols, and with or without a water-miscible alcohol.

3,574,126

NOVEL ZINC COMPOSITION

Virgil L. Hansley and Stuart Schott, Cincinnati, Ohio, and Louis F. Moormeier, Fairfield, Conn., assignors to National Distillers and Chemical Corporation, New York, N.Y.
No Drawing. Original application Oct. 8, 1965, Ser. No. 494,243. Divided and this application Jan. 15, 1969, Ser. No. 810,063

U.S. Cl. 253—182 6 Claims
A reactive zinc composition comprises a sodium-zinc alloy admixed with a liquid hydrocarbon, the alloy having a particle size of 1–25 microns and a sodium content of 0.5–4.0 weight percent.

3,574,127

COMPOSITIONS PREPARED BY TREATING DIAMINE-KETONE MIXTURES WITH ANHYDROUS DRYING AGENTS

Anthony S. Schelbhofer, Barberton, Ohio, assignor to The Goodyear Tire & Rubber Co., Akron, Ohio
No Drawing. Original application Jan. 30, 1967, Ser. No. 612,347, now Patent No. 3,463,748, dated Aug. 26, 1969. Divided and this application Aug. 22, 1969, Ser. No. 852,482

U.S. Cl. 252—184 9 Claims
A composition and its method of preparation, prepared by treating a mixture of at least one diamine, where the

amino groups of the diamine are connected to non-benzoid carbon atoms and at least one liquid ketone with a drying agent inert to diamines and ketones. The composition is particularly useful as a curative for isocyanate-terminated polyurethanes.

3,574,128

METHODS OF MAKING FILTERS AND PRODUCTS MADE THEREFROM

Frank T. King, Perrysburg, Ohio, assignor to Owens-Illinois, Inc.

No Drawing. Continuation-in-part of application Ser. No. 495,863, Oct. 11, 1965, now Patent No. 3,352,430, which is a continuation-in-part of application Ser. No. 456,525, May 17, 1965. This application Aug. 30, 1967, Ser. No. 664,314

The portion of the term of the patent subsequent to Oct. 21, 1986, has been disclaimed
Int. Cl. G02b 3/20

U.S. Cl. 252-380

14 Claims

A band-pass filter for transmitting a preselected band of ultraviolet light in the wavelength range of about 1900 to 4000 Å. units is prepared by incorporating an ultraviolet light absorbing compound in a transparent, machinable solid organopolysiloxane prepared in a particular way. The ultraviolet light absorbing compound provides (in combination with the resin) a spectrum with at least two intense absorption bands with a pronounced minima between the absorption maxima. The organopolysiloxane is prepared by heating a silane represented by the formula TSiZ_3 , in which T is an alkyl group such as methyl or an arkenyl group such as vinyl or an aryl group such as phenyl and Z is an alkoxy group such as ethoxy, with water, concentrating the resultant reaction mixture by heating it at a temperature of about 100° to 300° C. to remove by-product alkanol and water, precurating the concentrated product by heating at a temperature of about 90° to 185° C. to provide a further curable organopolysiloxane. The ultraviolet light absorbing compound generally is mixed with the further curable organopolysiloxane which is then formed into an article adapted for use as a filter in said preselected wavelength.

3,574,129

METHOD FOR PREVENTING HYDROLYSIS OF A RARE EARTH OXIDE HOST PHOSPHOR IN A COATING SLURRY

Michael J. Hammond, Raymond F. Herner, and Felix F. Mikus, Towanda, Pa., assignors to Sylvania Electric Products Inc.

No Drawing. Filed Feb. 28, 1969, Ser. No. 803,430
Int. Cl. C09k 1/10

U.S. Cl. 252-301.3

3 Claims

Disclosed are methods for preventing the hydrolysis of a rare earth oxide host phosphor contained in a slurry of an organic binder sensitized with a dichromate ion by adjusting the pH of the slurry to between about 8 and 11. Also disclosed is a method for applying a slurry of this material to a substrate.

3,574,130

EUROPIUM ACTIVATED RARE EARTH PHOSPHORS CONTAINING TRIVALENT CERIUM BRIGHTNESS CONTROL

James E. Mathers, Ulster, and Emil J. Mehalchick, Towanda, Pa., assignors to Sylvania Electric Products Inc.

No Drawing. Filed Jan. 16, 1969, Ser. No. 791,771
Int. Cl. C09k 1/10, 1/14, 1/44

U.S. Cl. 252-301.4

6 Claims

An improved process for the manufacture of europium-activated rare earth oxide phosphors, europium-activated rare earth phosphors derived from rare earth oxides and mixtures thereof and the improved phosphors are dis-

closed. The improvement comprises controlling the brightness of the phosphor by incorporating a controlled amount of cerium into the europium-activated rare earth oxide at the time of synthesis of the europium-activated rare earth oxide.

3,574,131

PROCESS FOR PREPARING RARE EARTH OXIDE PHOSPHORS

John L. Ferri, Towanda, and James E. Mathers, Ulster, Pa., assignors to Sylvania Electric Products Inc.

No Drawing. Filed Feb. 4, 1969, Ser. No. 796,551
Int. Cl. C09k 1/10

U.S. Cl. 252-301.4

9 Claims

A process for increasing and controlling the particle size of a rare earth oxide phosphor is disclosed. The process comprises forming a mixture of a fluxing agent and a rare earth source in weight ratios of from about 4:96 to about 25:75, raising the temperature of the mixture to at least about 1100° C. and holding the mixture above about 1100° C. for a sufficient time to form a rare earth oxide phosphor having a particle size of at least about 4 microns. The fluxing agents suitable are the alkali metal hydrogen sulfates, alkali metal pyrosulfates and mixtures thereof. The particle size of the phosphor material is dependent upon the amount of fluxing agent used within the suitable ratio of fluxing agent to rare earth source.

3,574,132

PROCESS OF ENCAPSULATING BASIC NITROGEN COMPOUNDS WITH ALKALI-PRECURSOR GELATIN

Benjamin Mosier, Houston, Tex., and Charles E. Tippett, Dayton, Ohio, assignors to said Mosier and Microcap, Inc., Houston, Tex.

No Drawing. Continuation-in-part of application Ser. No. 433,501, Feb. 17, 1965. This application Jan. 12, 1968, Ser. No. 697,307

Int. Cl. B01j 13/02; A01n 17/00; C23f 11/14

U.S. Cl. 252-316

13 Claims

Process of microencapsulation employing alkali-precursor (Type B) gelatin as the encapsulating macrocolloid, particularly applicable to the formation of liquid center microcapsules containing a basic (cationic) nitrogen compound. For example, an aqueous solution of alkali-precursor gelatin is mixed at an alkaline pH with a water-immiscible organic solvent solution of a nitrogen compound, such as an amine or a quaternary. The pH of the mixture (viz. the gelatin phase) is then reduced to at least 4.5 and preferably 3.8 or below, the liquid phases being intermixed to disperse and emulsify the organic solvent phase in the aqueous phase, thereby providing minute droplets of the basic nitrogen containing organic solvent surrounded by the aqueous solution of the alkali-precursor gelatin. At the low acid pH, the gelatin forms a coating on the droplets and provides encapsulating skins therefor. While the encapsulated droplets can be recovered at the low acid pH, it is preferred to raise the pH to a pH above 5.5 (preferably 7.5-11), and then recover the microcapsules. An auxiliary coating can be applied to the recovered microcapsular material thus produced by contacting the microcapsules with an aqueous solution of acid-precursor gelatin.

3,574,133

ENCAPSULATION PROCESS AND ITS PRODUCT

Robert Gordon Bayless, Yellow Springs, and Donald Day Emrick, Kettering, Ohio, assignors to The National Cash Register Company, Dayton, Ohio

No Drawing. Filed Jan. 29, 1968, Ser. No. 701,127
Int. Cl. B01j 13/02; B44d 1/02; A61k 9/04

U.S. Cl. 252-316

11 Claims

A process is disclosed for producing, en masse, in an aqueous manufacturing vehicle, minute capsules having

walls comprising the product of a complexing reaction between poly(vinyl alcohol) and a slowly hydrolyzable alkylene glycol cyclic borate ester to form a non-gelling product. The process utilizes liquid-liquid phase separation in a homogeneous system, which is achieved by combination, in solution in the manufacturing vehicle, of the poly(vinyl alcohol) and the cyclic borate ester material.

In the process, complexed poly(vinyl alcohol) and the cyclic borate ester material emerges from solution in the manufacturing vehicle as a separated liquid phase, relatively high in concentration of poly(vinyl alcohol) and dispersed as a discontinuous liquid phase in the manufacturing vehicle. The separated liquid phase, when agitated, wets and enwraps dispersed, introduced, particles of intended capsule core entities to produce capsules. Optionally, the produced capsule walls can be chemically treated with solutions of certain transition metal salts to chemically harden the capsule walls and make them self-supporting.

3,574,134

PROCESS FOR RAPIDLY GELLING AN ORGANIC LIQUID

Robert J. F. Palchak, Springfield, Va., assignor to The Susquehanna Corporation

No Drawing. Continuation of application Ser. No. 493,270, Oct. 5, 1965. This application May 31, 1968, Ser. No. 752,408

Int. Cl. B01j 13/00; C10f 7/02

U.S. Cl. 252-316

15 Claims

A process for rapidly gelling an organic liquid by cationically polymerizing polyvinyl ether monomers in said organic liquid. This process is useful for rapidly gelling the contents of railroad tank cars, highway tank trucks, storage tanks, etc., which contain liquid organic chemicals, after they have ruptured to prevent further losses and fire hazards.

3,574,135

PRODUCTION OF IMPROVED THICKENED OR THIXOTROPIC COMPOSITIONS FROM FLUID ENERGY MILLED COLLOIDAL SILICA

Francis R. Sampson, 2320 W. Greenwood, Glendale, Wis. 54437, and Richard F. Heilmiller, 2520 York Road, Raleigh, N.C. 27608

No Drawing. Continuation-in-part of application Ser. No. 483,779, Aug. 30, 1965. This application Feb. 20, 1968, Ser. No. 706,778

Int. Cl. B01j 13/00; C01b 33/14; C10m 5/02

U.S. Cl. 252-317

10 Claims

The present invention provides a process for improving the (1) thickening and/or (2) thixotropic properties of certain colloidal silicas. Said process broadly comprises fluid energy milling of certain colloidal silicas having BET-N₂ surface areas of less than about 300 m.²/gram. The thusly treated silicas are found to be useful in the production of greases and sag resistant gel coatings.

3,574,136

DEWATERING BITUMINOUS FROTH

Francis J. Werth, Edmonton, Alberta, Canada, assignor to Cities Service Athabasca, Inc., Imperial Oil Limited, Atlantic Richfield Corporation, and Royalite Oil Company, Limited, fractional part interest to each

Filed June 17, 1968, Ser. No. 737,550

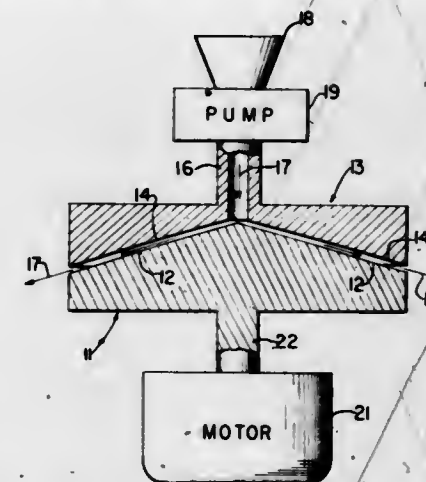
Int. Cl. B01d 17/00

U.S. Cl. 252-349

10 Claims

Bituminous emulsion such as that produced in the hot water process for recovery of bitumen from tar sand is treated for coalescence of water contained in the emulsion by forcing the emulsion between two closely and uniformly spaced surfaces. Shearing forces are thus applied to the emulsion and result in coalescence of water which may subsequently be removed to enable recovery of bitu-

men of reduced water content. The surfaces between which the emulsion is forced may be parallel or curved concentric surfaces and are preferably spaced between



about 1/8 and about 1/2 inch apart. Additional shearing force may be applied by movement of at least one of the surfaces in a direction transverse to the direction of flow of the emulsion between the surfaces.

3,574,137

MULTIPLE-ANALYSIS HEMATOLOGY CONTROL COMPRISING HUMAN RED BLOOD CELLS AND FOWL RED BLOOD CELLS IN AN ANTICOAGULANT CONTAINING HUMAN SEROLOGICALLY COMPATIBLE PLASMA MEDIUM

Anthony J. Decasperis, Elmhurst, N.Y., assignor to Pfizer Inc., New York, N.Y.

No Drawing. Filed Feb. 25, 1969, Ser. No. 802,263
Int. Cl. G01n 33/16

U.S. Cl. 252-408

9 Claims

A diagnostic composition serving as a multiple-analysis hematology reference control for red blood cell and white blood cell counting, hemoglobin content and hematocrit determination.

3,574,138

CATALYSTS

Karl Ziegler, Kaiser-Wilhelm-Platz 1, Mulheim (Ruhr), Germany, and Heinz Brell, Erhard Holzkamp, and Heinz Martin, Mulheim (Ruhr), Germany; said Brell, Holzkamp and Martin assignors to said Ziegler

Continuation of applications Ser. No. 469,059, Nov. 15, 1954, now Patent No. 3,257,332, Ser. No. 527,413, Aug. 9, 1955, now abandoned, and Ser. No. 554,631, Dec. 22, 1955, now abandoned. This application Nov. 26, 1957, Ser. No. 692,020

Claims priority, application Germany, Nov. 17, 1953, Z 3,799; Dec. 15, 1953, Z 3,862; Dec. 23, 1953, Z 3,882; June 10, 1954, Z 4,375; Dec. 27, 1954, Z 4,629

Int. Cl. B01j

U.S. Cl. 252-429

23 Claims

Catalyst for polymerizing olefins such as ethylene and its homologues in the form of the product obtained upon mixing an aluminum triaryl or aralkyl with a salt, freshly precipitated oxide or hydroxide of a metal of Group IV-B, V-B or VI-B of the Periodic System, including thorium or uranium. Preferable salts are halides, such as titanium chloride or zirconium chloride.

3,574,139

ORGANOALUMINUM HALIDE-COBALT/BIS-PHOSPHINE COMPLEX CATALYSTS

Robert Junior Harder, Wilmington, Del., assignor to E. I. du Pont de Nemours and Company, Wilmington, Del.

No Drawing. Filed Sept. 12, 1966, Ser. No. 578,477
Int. Cl. C07c 17/12

U.S. Cl. 252-431

1 Claim

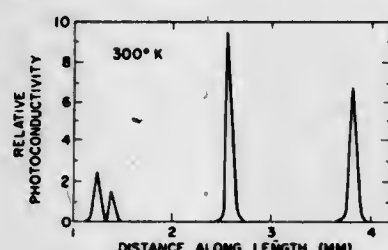
Cis-1,4-hexadiene is prepared by reacting ethylene with butadiene in the presence of a catalyst prepared by mix-

ing bis[ethylenebis(diphenylphosphine)]cobalt (0) or bis[ethylenebis(diphenylphosphine)]cobalt (I) hydride with isobutylaluminum dichloride.

3,574,140 EPITAXIAL LEAD-CONTAINING PHOTO-CONDUCTIVE MATERIALS

Richard B. Schoolar, Hyattsville, and Harold R. Riedl and John L. Davis, Adelphi, Md., assignors to the United States of America as represented by the Secretary of the Navy

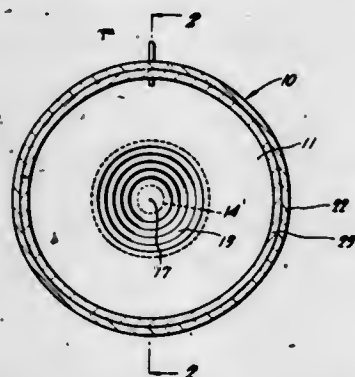
Filed Feb. 26, 1968, Ser. No. 708,163
Int. Cl. H01c; H01l 13/00; G03g 5/02
U.S. Cl. 252—501 8 Claims



A photo-conductive material is formed by taking an epitaxial film of a lead salt or tin lead salt alloy and heating the film in the presence of a gaseous doping agent. The resulting product exhibits photo-sensitive junctions formed along crystallographic defect lines.

3,574,141 CATHODE

Jean Berchtold, Pasadena, Calif., assignor to Bell & Howell Company, Chicago, Ill.
Original application Sept. 10, 1965, Ser. No. 487,652, now Patent No. 3,500,106, dated Mar. 10, 1970. Divided and this application Oct. 2, 1969, Ser. No. 870,716
Int. Cl. H01b 1/02; C01f 1/00
U.S. Cl. 252—512 4 Claims



A composition having electron emission properties when compacted and subjected to a heating current, comprising thorium as a first metal oxide, rhenium, and a small amount of refractory second metal oxide.

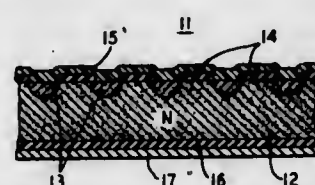
3,574,142 CERAMIC MATERIAL FOR MAGNETOHYDRO-DYNAMIC GENERATOR ELECTRODE

David Yerouchalmi, Le Mesnil-St-Denis, France, assignor to Commissariat a l'Energie Atomique, Paris, France
No Drawing. Filed Jan. 24, 1969, Ser. No. 793,906
Claims priority, application France, Jan. 24, 1968, 137,310

Int. Cl. H01b 1/06; G21d 7/02
U.S. Cl. 252—520 6 Claims
Conductive ceramic material which is intended for the fabrication of MHD generator electrodes and affords resistance to the corrosive action of the alkaline seed is the gas which passes through the generator duct. Said ceramic material consists mainly of an alkaline-earth zirconate containing an additive which is selected from chromium oxide and alumina.

3,574,143 RESISTIVE COMPOSITION OF MATTER AND DEVICE UTILIZING SAME

Frederick Vratny, Berkeley Heights, N.J., assignor to Bell Telephone Laboratories, Incorporated, Murray Hill and Berkeley Heights, N.J.
Filed Feb. 19, 1969, Ser. No. 800,536
Int. Cl. H01b 1/06
U.S. Cl. 252—520 6 Claims



A novel resistive composition of matter of the general formula $(M,Hf)N_{2-x}$ wherein M is selected from the group consisting of tantalum and titanium and x ranges from 0.0–0.5 is obtained by reactive sputtering of metal cathodes in the presence of nitrogen at pressures ranging from 10–150 microns.

3,574,144 CERAMIC COMPONENT FOR MAGNETOHYDRO-DYNAMIC GENERATOR ELECTRODE

David Yerouchalmi, Le Mesnil-St-Denis, France, assignor to Commissariat a l'Energie Atomique, Paris, France
No Drawing. Filed Jan. 24, 1969, Ser. No. 793,907
Claims priority, application France, Jan. 24, 1968, 137,311
Int. Cl. H01b 1/06; G21d 7/02
U.S. Cl. 252—521 2 Claims

A ceramic component which is intended for use in the fabrication of MHD generator electrodes and has high-temperature strength as well as high resistance to the corrosive action of the seed in the feed gas. The component mainly contains at least one of the magnesium spinels $MgO-Cr_2O_3$ and $MgO-Al_2O_3$ to which is added an alkaline-earth oxide CaO , BaO or SrO in a proportion within the range of 1 to 10 mole percent.

3,574,145 ION-EXCHANGE RESINS FROM KETONE-DIALDEHYDE CONDENSATES

Jean-Pierre Quentin, Lyon, and Michel Ruand, Rhone, France, assignors to Rhone-Poulenc S.A., Paris, France
No Drawing. Filed Mar. 18, 1969, Ser. No. 808,315
Claims priority, application France, Mar. 19, 1968, 144,422
Int. Cl. C08g 3/00
U.S. Cl. 260—2.1 2 Claims

Ion-exchange resins are made by introducing ion-exchange groups into polycondensates made by reaction of a dialdehyde with a ketone.

3,574,146 PROCESS FOR THE PRODUCTION OF POLYAMIDE FOAMS

Hermann Schnell, Krefeld-Urdingen, Kurt Schneider, Krefeld-Bockum, and Heinrich Gilch, Krefeld-Urdingen, Germany, assignors to Farbenfabriken Bayer Aktiengesellschaft, Leverkusen, Germany
Filed Dec. 15, 1967, Ser. No. 690,833
Claims priority, application Germany, Dec. 17, 1966, F 50,985
Int. Cl. C08f 47/08; C08j 1/14, 1/20
U.S. Cl. 260—2.5 4 Claims

A process for the continuous production of a polyamide foam by introducing (1) a mixture of a lactam and an alkaline catalyst e.g. sodium borohydride, and (2) a

mixture of a lactam and an activator, e.g. hexamethylene diisocyanate, in a mixing chamber. Preferably, heating is accomplished in the mixing chamber by heat exchange wherein mixture (1) is introduced just above the lactam melting point and mixture (2) is above the reaction temperature. The combined mixtures are introduced into a heated mold for polymerization and foaming.

3,574,147 GASKET COMPOSITION

Donald A. Glessler and Floyd Arthur Ratliff, Muncie, Ind., assignors to Ball Corporation, Muncie, Ind.
No Drawing. Continuation of application Ser. No. 378,955, June 29, 1964. This application June 11, 1968, Ser. No. 751,642
Int. Cl. C08f 47/10; C08g 53/10
U.S. Cl. 260—2.5 12 Claims

Home canning lid having as the sealing portion thereof a cellular plastisol gasket formed from a vinyl polymer, a phenol-formaldehyde resin, a filler, at least one plasticizer, and a blowing agent, and said gasket composition which is capable of withstanding the pressures, temperatures, and abrasion inflicted upon a home canning lid.

3,574,148 CELLULAR POLYURETHANE PLASTICS

Erwin Windemuth and Gerhard Grogler, Leverkusen, Germany, assignors to Farbenfabriken Bayer Aktiengesellschaft, Leverkusen, Germany
No Drawing. Filed Mar. 4, 1969, Ser. No. 804,301
Claims priority, application Germany, Mar. 7, 1968, P 16 94 250.0
Int. Cl. C08g 22/00, 51/58
U.S. Cl. 260—2.5 2 Claims

Cellular polyurethane plastics having improved flame resistance which contain an open chain or cyclic organic ester of an acid of hexavalent sulphur and a bromide or iodide of an alkali metal or an alkaline earth metal, lithium chloride, calcium chloride or magnesium chloride wherein the organic ester contains no hydrogen atoms which are reactive with NCO groups.

3,574,149 FLAME RETARDANT FLEXIBLE POLYURETHANE FOAMS

John T. Harrington, Akron, Ohio, assignor to The General Tire & Rubber Company, Akron, Ohio
No Drawing. Filed May 13, 1969, Ser. No. 824,285
Int. Cl. C08g 22/44
U.S. Cl. 260—2.5 7 Claims

Low density, flexible and semiflexible polyetherurethane foams containing halogen-containing polymers such as polyvinyl chloride are rendered resistant to flame to the point of being self-extinguishing by the use of a minor amount of a mixture of zinc oxide (French process) and antimony oxide.

3,574,150 OPEN-PORE POLYURETHANE PRODUCT

Robert T. Jefferson, West Carrollton, and Ival O. Salyer, Dayton, Ohio, assignors to the United States of America as represented by the United States Atomic Energy Commission
Continuation-in-part of abandoned application Ser. No. 586,923, Oct. 17, 1966. This application May 28, 1969, Ser. No. 828,647
Int. Cl. C08g 22/44, 22/12
U.S. Cl. 260—2.5 8 Claims

An open-pore polyurethane structure having a porosity of at least 50% and a density of 0.1–0.5 gram per cubic centimeter, and comprising coherent spherical particles of

less than 10 microns diameter separated by interconnected interstices useful as a filter and oil-absorbent; and the method of producing said structure.

3,574,151 PROCESS FOR THE PREPARATION OF TRANSPARENT IMPACT-RESISTANT POLYMER COMPOSITIONS

Takeshi Goto, Nikko Danchi, Nikko-cho, Fuchu-shi; Eiji Sakaoka, 48, 2-chome, Seki-machi, Nerima-ku; Michikazu Hiraoka, 261 Hyakunin-cho, Shinjuku-ku; and Shonosuke Rokudo, 588, 3-chome, Nerimune Suganami-ku, all of Tokyo, Japan
No Drawing. Filed Mar. 26, 1968, Ser. No. 715,976
Int. Cl. C08f 19/08
U.S. Cl. 260—4 23 Claims

A method for providing a transparent impact-resistant graft polymer of an aromatic vinyl monomer and a rubbery polymer backbone whereby graft polymerization is conducted in the presence of a minor amount of β -bromostyrene and a transparent impact-resistant graft polymer resulting therefrom.

3,574,152 PLASTIC MATERIALS COMPRISING TEA EXTRACTS RESIDUE AS FILLER

Eugenie Ligo, 38 Calcraft House, Bonner Road, London, England
No Drawing. Filed Aug. 13, 1969, Ser. No. 849,873
Claims priority, application Great Britain, Aug. 14, 1968, 38,935/68
Int. Cl. C08g 51/14
U.S. Cl. 260—6 14 Claims

Plastic materials comprise as filler the material/tea flour which is the residue obtained after extraction of solubles from tea leaves and stalks reduced to dried powdered form.

3,574,153 WATER REMOISTENABLE HOT MELT ADHESIVE COMPOSITIONS COMPRISING MIXTURES OF WATER SOLUBLE POLYMERS WITH ACID HYDROLYZED POLYVINYL ACETATE

Julius Sirota, South Plainfield, N.J., assignor to National Starch and Chemical Corporation, New York, N.Y.
Filed July 6, 1967, Ser. No. 651,438
Int. Cl. C08f 29/30; C08g 49/00; C09j 3/06, 3/16
U.S. Cl. 260—8 10 Claims

Remoistenable hot melt adhesive compositions comprising a mixture of a water soluble polymeric species with a polyvinyl acetate which has been hydrolyzed by means of an acidic hydrolysis technique to the extent that from about 10 to 60% of its original number of acetate groups are converted into hydroxyl groups. Flexible web substrates coated on at least one surface, or part thereof, with said remoistenable hot melt adhesive compositions. These adhesive compositions are ideally suited for use in the manufacture of envelopes, stamps, gummed tapes and wallpaper, etc.

3,574,154 CELLULOSE ACETATE BUTYRATE COATING COMPOSITIONS AND COATED PRODUCTS

Robert S. Shaw, Huntingdon Valley, Bayard V. Tirrell, Warminster, and John L. Gardon, Cheltenham, Pa., assignors to Rohm and Haas Company, Philadelphia, Pa.
No Drawing. Filed July 11, 1968, Ser. No. 743,968
Int. Cl. C08b 21/08; C08g 41/00; C08h 15/00; C09d 3/48
U.S. Cl. 260—16 5 Claims

The present invention is concerned with improved coating compositions based on cellulose acetate butyrate plasticized with diisocyanate-extended polyesters having a mo-

lecular weight of at least 8000. The invention also includes flexible products, such as substitute leather having topcoatings thereon of outstanding flexibility made from these compositions.

3,574,155

WOOD FILLER COMPOSITION

Thomas G. Parker, Fisher Lake, Three Rivers, Mich., assignor to U.S. Plywood-Champion Papers Inc., New York, N.Y.

Filed June 17, 1968, Ser. No. 737,710

Int. Cl. C08f 45/52

U.S. Cl. 260—23 13 Claims
The present invention is concerned with a plastic filler composition for fibrous or wood products for use in the building materials and construction industries, particularly for use when face nailing wooden elements such as plywood panels and boards wherein the nails are countersunk. The filler is composed of tall-oil fatty acid ester, waxes, polyethylene, pigment, talc, and optionally, an antioxidant.

3,574,156

ANTISTATIC RESINOUS COMPOSITIONS

John Duncan Wagner, Chester, England, and Hans-Werner Friedrich Michael Fluck, Wedel-Holstein, Germany, assignors to Lever Brothers Company, New York, N.Y.

No Drawing. Filed May 28, 1969, Ser. No. 830,217
Claims priority, application Great Britain, May 31, 1968, 26,130/68

Int. Cl. C08f 45/00

U.S. Cl. 260—23 4 Claims
The invention relates to the use of fatty acid glycerides containing at least 50% by weight, preferably at least 80% by weight of a saturated linear C₈-C₁₀ monoglyceride for reducing the surface electrical resistance of thermoplastic polymers such as polyethylene, polypropylene, polyvinylchloride and polystyrene. Resinous compositions possessing improved antistatic properties and comprising 0.05-7% by weight C₈-C₁₀ monoglyceride and processes for preparing these compositions are provided.

3,574,157

COATING COMPOSITION OF EPOXY RESINS, POLYESTER RESINS, AND VINYL MONOMERS

Fred Markus, 4343 Finley Ave.,
Los Angeles, Calif. 90027

No Drawing. Filed Feb. 3, 1969, Ser. No. 796,223

Int. Cl. C08f 45/52

U.S. Cl. 260—28.5 9 Claims
An improved liquid stable resinous coating composition polymerized by an epoxy converter to a solid durable coating having controlled flexibility is provided. The composition comprises liquid epoxy resin curable at ambient temperature with a converter such as an amine and a specified volume concentration of a liquid unsaturated polyester at least essentially free of triglyceride oil and fatty acid and comprising the reaction product of polybasic acid and polyhydric alcohol, at least one of the acid and alcohol being unsaturated, in a concentration sufficient to increase the flexibility of the composition, and a promoter for the polyester. Composition is, in part, characterized by being free of a catalyst for the polyester and at least essentially free of volatile solvent. The composition is capable of being spread as a coating on a surface and cured at ambient temperature to a durable solid surface having controlled flexibility by adding the epoxy converter to the liquid composition before coating. Prior to such addition the composition can be maintained over a considerable period of time without thickening. The invention also includes a method of coating utilizing the composition.

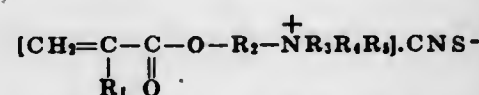
3,574,158
DYEABLE ACRYLONITRILE POLYMER COMPOSITIONS

Denis Coleman, Stamford, Conn., assignor to American Cyanamid Company, Stamford, Conn.

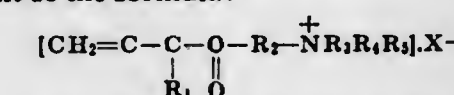
No Drawing. Continuation-in-part of application Ser. No. 692,677, Dec. 22, 1967. This application Apr. 10, 1968, Ser. No. 720,329

Int. Cl. C08f 15/00, 45/24, 37/18

U.S. Cl. 260—29.6 17 Claims
A copolymer of about 65 to 92 mole percent acrylonitrile, and about 8 to 35 mole percent of a salt of the formula:



wherein R₁ is selected from the group consisting of hydrogen and methyl, R₂ is selected from the group consisting of alkylene and hydroxyalkylene of two to four carbon atoms and —CH₂CH₂OCH₂CH₂—, and R₃, R₄ and R₅ are each lower alkyl of between 1 and 3 carbon atoms. The copolymer is obtained by copolymerizing in an aqueous medium acrylonitrile and a quaternary ammonium salt of the formula:



wherein R₁, R₂, R₃, R₄ and R₅ are defined above and X is a water soluble anion. The copolymer is precipitated from the aqueous medium with a water-soluble thiocyanate compound. These copolymers are useful in the production of acid dyeable or modified basic dyeable acrylonitrile shaped articles when blended with acrylonitrile polymers containing more than 70 weight percent acrylonitrile.

3,574,159

POLYMERIC LATICES

Edward Joseph Fetter, Springdale, and Frederick Lyle Andrew, Norwalk, Conn., assignors to American Cyanamid Company, Stamford, Conn.

No Drawing. Filed Dec. 22, 1967, Ser. No. 692,721

Int. Cl. C08d 1/09, 7/18

U.S. Cl. 260—29.7 10 Claims
Synthetic latex compositions comprising a polymer of a styrene monomer, a conjugated diolefin and an unsaturated acid or amide and from about 0.5 to about 10.0%, by weight, of various cyclohexyl sulfosuccinates, are disclosed.

3,574,160

PROCESSING AIDS

Nelson Nae-Ching Hsu, Stamford, Conn., assignor to American Cyanamid Company, Stamford, Conn.

No Drawing. Filed Dec. 7, 1967, Ser. No. 688,675

Int. Cl. C08f 45/44

U.S. Cl. 260—30.4 4 Claims
Compositions comprising difficultly processable thermoplastic resins containing various furfuryl and picoline materials as processing aids and a process for the production thereof are disclosed. These resins are the polyimides, the polysulfones, the polyphenylene oxides, and the polycarbonates.

3,574,161

MANUFACTURE OF POLYMERIC COMPOSITIONS
Robert P. Campion, Walsall, and James F. Yardley, Little Aston, near Sutton Coldfield, England, assignors to The Dunlop Company Limited, London, England

No Drawing. Filed Feb. 28, 1968, Ser. No. 708,764
Claims priority, application Great Britain, Mar. 28, 1967, 10,411/67

Int. Cl. C08f 47/20

U.S. Cl. 260—34.2 9 Claims
Method of preparing a solution of a polymeric material in an organic solvent which comprises mixing (A)

a dispersion of polymeric particles in water, in which the particles are dispersed with the assistance of an ionic dispersing agent, with (B) a dispersion of the organic solvent in water, in which the solvent has been dispersed using a high degree of shear with the assistance of a dispersing agent of opposite polarity to the first-mentioned dispersing agent, and separating the water layer thus formed from the organic solvent layer containing the polymeric material.

3,574,162

STABILISING MALEIC ANHYDRIDE COPOLYMERS

Dennis Arthur Barr, Welwyn, England, assignor to Imperial Chemical Industries Limited, London, England
No Drawing. Continuation-in-part of application Ser. No. 368,330, May 18, 1964. This application Sept. 18, 1968, Ser. No. 760,662

Int. Cl. C08f 45/58

U.S. Cl. 260—45.7 6 Claims
Copolymers of maleic anhydride and 2-substituted propenes as claimed in U.S. Pats. 3,297,654 and 3,318,851 are heat-stabilized during moulding processes by the incorporation of non-volatile organic sulphonic acids or their esters, organic base salts, anhydrides and acid halides which will decompose to yield the organic sulphonic acid when heated during fabrication into shaped articles.

3,574,163

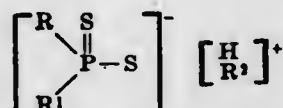
POLYOLEFINS STABILIZED WITH AMINE SALTS OF PHOSPHINODITHIOIC ACIDS

Stanley B. Mirviss, Stamford, Conn., and Melvin M. Schlechter, New Hyde Park, N.Y., assignors to Stauffer Chemical Company, New York, N.Y.

No Drawing. Original application Jan. 3, 1966, Ser. No. 517,950. Divided and this application Dec. 5, 1967, Ser. No. 708,459

Int. Cl. C08f 45/60

U.S. Cl. 260—45.8 4 Claims
Poly-α-olefin compositions having improved light stability. The compositions comprise an α-olefin polymer formed by the polymerization of an α-mono-olefinic aliphatic hydrocarbon having from 2 to 10 carbon atoms and a stabilizing quantity of a novel organophosphorus amine salt of the formula:



wherein R and R' are selected from the group consisting of alkyl, alkoxy, aryl, aryloxy and aralkyl; and R² is an amine selected from the group consisting of secondary and tertiary heterocyclic amines.

3,574,164

FLAME RETARDANT COMPOSITIONS

Henryk A. Cyba, Evanston, Ill., assignor to Universal Oil Products Company, Des Plaines, Ill.

No Drawing. Filed Dec. 12, 1968, Ser. No. 783,439
Int. Cl. C08c 27/70; C08f 45/62; C08g 51/62; C08d 11/04
U.S. Cl. 260—45.75 24 Claims

Novel compositions of matter comprise (1) a compound containing at least one reactive functional substituent and (2) a salt of a phosphorus compound and the reaction product formed from a polyhalopolyhydrocyclohexanedicarboxylic acid, anhydride or ester with an alkanolamine containing a hydroxyl and an amino group. The compounds are exemplified by a composition of matter comprising polypropylene and a salt prepared by reacting 5,6,7,8,9 - hexachloro - 1,2,3,4,4a,5,8,8a - octahydro - 5,8 - methano - 2,3 - naphthalenedicarboxylic anhydride with N,N-diethyl ethanolamine and then react-

ing the resultant reaction product with mixed mono- and di-tridecyl acid ortho-phosphate. These compositions of matter are useful where a high degree of resistance to flame is a required characteristic of the product.

3,574,165

STABILIZING OF ORGANIC MATERIALS

Harry Braus, Springdale, and Jay R. Woltermann, Cincinnati, Ohio, assignors to National Distillers and Chemical Corporation, New York, N.Y.

No Drawing. Original application Nov. 22, 1967, Ser. No. 684,962, now Patent No. 3,509,220, dated Apr. 28, 1970. Divided and this application Aug. 27, 1969, Ser. No. 870,729

Int. Cl. C08f 45/58

U.S. Cl. 260—45.95 2 Claims
2,9-bis(3,5-di-t-butyl-4-hydroxybenzylthio) - p - methane can be used to stabilize organic materials.

3,574,166

HIGH MOLECULAR WEIGHT POLYQUINAZOLONES

Eduard Radlmann, Gunter Lorenz, and Manfred Gallus, Dormagen, Jurgen Schramm, Solingen-Obbich, and Gunther Nischk, Dormagen, Germany, assignors to Farbenfabriken Bayer Aktiengesellschaft, Leverkusen, Germany

No Drawing. Filed June 16, 1969, Ser. No. 833,779
Claims priority, application Germany, June 26, 1968, P 17 70 707.2

Int. Cl. C08g 33/02

U.S. Cl. 260—49 2 Claims
High molecular weight polyquinazolones and a process for their production by polycondensation of a mixture of polymerhomologous primary aromatic diamines containing ether groups with dibenzoxazinones at temperatures of from 80 to 250° C.

3,574,167

NITROGENOUS POLYESTER-ETHER POLYOLS AND POLYURETHANES PREPARED THEREFROM

Leslie Catron Case and Laura Kaiser Case, both of 14 Lockeland Road, Winchester, Mass. 01890

No Drawing. Continuation-in-part of application Ser. No. 803,975, Mar. 3, 1969, which is a division of application Ser. No. 532,116, Mar. 7, 1966, now Patent No. 3,454,530, which is a continuation-in-part of applications Ser. No. 168,062, Jan. 23, 1962, Ser. No. 188,842, Apr. 19, 1962, Ser. No. 456,816, May 18, 1965, Ser. No. 485,932, Sept. 8, 1965, Ser. No. 611,826, Jan. 26, 1967, now Patent No. 3,502,601, and Ser. No. 665,005, Aug. 21, 1967, now Patent No. 3,483,169. This application May 19, 1969, Ser. No. 825,997

Int. Cl. C08g 22/06, 22/08

U.S. Cl. 260—75 24 Claims
Novel polyurethane compositions which are derived from novel nitrogenous polyester-ether polyols are described. These polyols are prepared by coreacting aminoalcohols, optionally aliphatic polyalcohols, cyclic anhydrides of alicyclic and/or aromatic polycarboxylic acids, and epoxides or oxetanes.

3,574,168

PROCESS FOR REDUCING OXIDATION OF POLYCARBONAMIDE PELLETS

Wayne H. Martin, Vienna, W. Va., assignor to E. I. du Pont de Nemours and Company, Wilmington, Del.

No Drawing. Filed Dec. 29, 1967, Ser. No. 694,409

Int. Cl. C08g 20/38

U.S. Cl. 260—78 5 Claims
Packaging of polyamide molding pellets wherein the polyamide is blanketed with an inert gas preferably from

the time of extrusion and particularly during drying until packaging and wherein the voids surrounding the pellets in the packaged polyamide are filled with an inert gas rather than an air atmosphere to avoid loss of color stability.

3,574,169

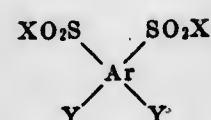
ARYLENE SULFIMIDE POLYMERS

Gaetano F. D'Alello, South Bend, Ind., assignor to the United States of America as represented by the Secretary of the Air Force

No Drawing. Continuation-in-part of application Ser. No. 668,254, Sept. 15, 1967. This application Dec. 3, 1969, Ser. No. 881,919

Int. Cl. C08g 20/00

U.S. Cl. 260—78 9 Claims
New polymers of improved resistance to high temperatures comprising polyarylene polysulfimides prepared by the condensation of tetrafunctional aromatic polysulfonic compounds of the formula



with polyamines of the formula $\text{H}_2\text{N}-\text{Ar}'-\text{NH}_2$ wherein Ar and Ar' represent polyvalent aromatic nuclei; the SO_2X groups are each paired with a Y radical in an ortho or peri position; Y represents $-\text{COX}$ or $-\text{SO}_2\text{X}$; X is OR, Cl, Br, or two X's of adjacent functional groups can together represent $-\text{O}-$ or $-\text{NR}-$; and R is hydrogen or a hydrocarbon radical of no more than 20 carbon atoms. The polymers of this invention may be used for preparing laminates, adhesives, fibers and molding compositions particularly for use at high temperatures such as in aerospace flight.

3,574,170

PROCESS FOR THE PRODUCTION OF BBB TYPE POLYMER

Edward C. Chenevey, North Plainfield, N.J., assignor to Celanese Corporation, New York, N.Y.

No Drawing. Filed Oct. 20, 1969, Ser. No. 867,878

Int. Cl. C08g 20/32, 33/02

U.S. Cl. 260—78.4 11 Claims
An improved process is provided for the formation of BBB type polymer, i.e. poly(bisbenzimidazobenzophenanthroline) and related nitrogenous polymers. The condensation reaction of at least one organic tetraamine and at least one tetracarboxylic acid (which may optionally be in the form of the corresponding dianhydride) is conducted in a phosphoric acid polymerization medium having an H_3PO_4 concentration of about 50 to 110 percent by weight. In a preferred embodiment of the invention the phosphoric acid is present in an H_3PO_4 concentration of about 104 to 109 percent by weight, e.g. superphosphoric acid having an H_3PO_4 concentration of about 105 percent by weight.

3,574,171

PROCESS FOR PRODUCING IMPROVED BBB TYPE POLYMER

Edward C. Chenevey, North Plainfield, and Rufus S. Jones, Jr., Morristown, N.J., assignors to Celanese Corporation, New York, N.Y.

No Drawing. Filed Oct. 20, 1969, Ser. No. 867,879

Int. Cl. C08g 20/32, 20/38, 33/02

U.S. Cl. 260—78.4 22 Claims
A process is provided for producing an improved BBB type polymer, i.e. poly(bisbenzimidazobenzophenanthro-

line) and related nitrogenous polymers. The improved BBB type polymer is essentially free of unstable linkages and is formed by slurring bulk polymer while in particulate form in a dilute aqueous solution of an alkaline compound selected from the group consisting of sodium hydroxide, potassium hydroxide, lithium hydroxide, ammonia, and mixtures of the foregoing. The polymer formed in the present process is particularly suited for the formation of thermally stable shaped articles, e.g. fibers or films, exhibiting improved tensile properties.

3,574,172

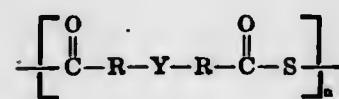
POLY(ALKYLETHYL THIO ANHYDRIDES)

Walter Stamm, Tarrytown, N.Y., assignor to Stauffer Chemical Company, New York, N.Y.

No Drawing. Filed Sept. 18, 1968, Ser. No. 760,679

Int. Cl. C08g 25/00

U.S. Cl. 260—79 5 Claims
Novel poly(alkylether thiol anhydrides) are provided having the formula:



wherein R is a divalent aliphatic hydrocarbon radical consisting essentially of hydrogen and carbon, Y is sulfur or oxygen and n is an integer representing the number of repeating units. Polymer compositions are also provided comprising vinyl type polymers containing the novel thio anhydride compositions of this invention as stabilizers therefor.

3,574,173

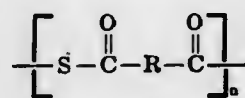
POLY(THIOL ANHYDRIDES)

Walter Stamm, Tarrytown, N.Y., assignor to Stauffer Chemical Company, New York, N.Y.

No Drawing. Filed Sept. 18, 1968, Ser. No. 760,699

Int. Cl. C08g 25/00

U.S. Cl. 260—79 5 Claims
Novel poly(thiol anhydrides) are provided having the formula:



wherein R is a divalent aliphatic hydrocarbon radical consisting essentially of hydrogen and carbon and n is an integer representing the number of repeating units. Polymer compositions are also provided comprising vinyl type polymers containing the novel thio anhydride compositions of this invention as stabilizers therefor.

3,574,174

POLYMERIZATION PROCESSES IN THE PRESENCE OF CATALYST COMPOSITIONS COMPRISING (1) REACTION PRODUCT OF A VANADIUM OXIDE AND ORGANIC PHOSPHORUS COMPOUND, (2) A HYDROCARBYL SILANE AND A HALO-ALUMINUM COMPOUND

John W. Bayer, Perrysburg, and Donald W. Gagnon and William C. Grinomeau, Toledo, Ohio, assignors to Owens-Illinois, Inc.

No Drawing. Continuation-in-part of application Ser. No. 465,210, June 18, 1965. This application Aug. 6, 1968, Ser. No. 750,492

Int. Cl. C08f 3/04, 3/30, 3/76

U.S. Cl. 260—88.7 10 Claims
Disclosed herein is a catalyst composition, a method for making it, and a method of polymerization of un-

saturated compounds; the catalyst composition contains a primary component (produced by the reaction of a vanadium oxide with an organic phosphorus oxy compound) which is employed in conjunction with an organo-aluminum compound as a cocatalyst.

3,574,175

PREPARATION OF WATER SOLUBLE ACRYLIC COPOLYMERS FOR USE IN WATER TREATMENT

Dudley G. Woodard, Columbia City, Md., assignor to W. R. Grace & Co., New York, N.Y.

No Drawing. Filed May 22, 1969, Ser. No. 827,057

Int. Cl. C08f 15/02

U.S. Cl. 260—80.3 14 Claims
This invention relates to the preparation of copolymers of hydrochlorides of N,N-diallylglycinonitrile, N,N-diallylglycinamide and N,N-diallylglycine with acrylic acid and acrylamide. These copolymers are useful in water treatment as scale formation inhibiting agents.

3,574,176

INTERPOLYMERIZATION OF A MIXTURE OF MONOOLEFINS AND A POLYENE IN THE PRESENCE OF CERTAIN BASES

Charles E. Boozer, Baton Rouge, La., assignor to Copolymer Rubber & Chemical Corporation

No Drawing. Continuation-in-part of application Ser. No. 571,168, Aug. 9, 1966, which is a continuation-in-part of application Ser. No. 551,513, May 20, 1966. This application Apr. 20, 1967, Ser. No. 632,168

Int. Cl. C08f 15/40

U.S. Cl. 260—80.78 18 Claims
Sulfur vulcanizable elastomers having improved characteristics are prepared by interpolymerizing a monomeric mixture containing ethylene, at least one alpha-monoolefin containing 3-16 carbon atoms, and at least one polyene in a hydrocarbon polymerization solvent, and in the presence of a Ziegler catalyst and certain bases such as ammonia, aniline and pyridine. The elastomers are soluble in the hydrocarbon solvent, and are free of deleterious gel or crosslinking and other undesirable forms of polymerization. The properties of the elastomer are reproducible and a uniform product may be produced on a continuous basis. The catalyst mileage is also increased markedly when using certain preferred bases.

3,574,177

PRODUCTION OF ACRYLONITRILE POLYMERS

Akira Nakajima, Kenji Takeya, and Yukio Shimosaka, Saidaiji, Japan, assignors to Japan Exlan Company Limited, Osaka, Japan

No Drawing. Continuation-in-part of abandoned application Ser. No. 397,652, Sept. 18, 1964. This application May 8, 1968, Ser. No. 727,670

Claims priority, application Japan, Sept. 23, 1963, 38/51,151

Int. Cl. C08f 3/76, 15/22

U.S. Cl. 260—88.7 11 Claims
The solution polymerization of acrylonitrile polymers and copolymers is facilitated when it is conducted under agitation in the presence of an inert dispersion medium. The solvent used is one that will dissolve both the monomer and the resulting polymer. The dispersion medium is a liquid that is not uniformly miscible with the solvent and it will not dissolve either the monomer or the polymer. Upon permitting the reaction product, a dispersion, to stand, quietly it separates into two liquid phases that can be separated by decantation. The preferred dispersion media are liquid hydrocarbons, halogenated or not, that have a boiling point above 268° C.

3,574,178

PRODUCTION OF VINYLIDENE FLUORIDE POLYMERS

Yasushi Toyoda and Nobuo Bannai, Iwaki-shi, Japan, assignors to Kureha Kagaku Kogyo Kabushiki Kaisha, Tokyo-to, Japan

No Drawing. Filed Apr. 4, 1968, Ser. No. 718,924
Claims priority, application Japan, Apr. 14, 1967, 42/23,742

Int. Cl. C08f 1/11, 3/22

U.S. Cl. 260—92.1 3 Claims
Suspension polymerization of vinylidene fluoride monomer is carried with the use of from 0.1 to 200 parts by weight of a water-soluble solvent such as methanol, ethanol, dioxane, or a mixture thereof relative to 100 parts by weight of water, this water-soluble solvent being used as an agent for regulating the degree of polymerization and particle size of the resulting polymer product. In addition, a dialkylperoxydicarbonate and a suspending agent such as a polyvinyl alcohol or a cellulose are used in the polymerization process.

3,574,179

PROCESS FOR THE PRODUCTION OF HIGHLY CRYSTALLINE POLYOLEFINS

Shotaro Sugiura, Harno Ueno, Hideo Ishikawa, and Takefumi Yamao, Ube-shi, and Tuneso Shimamura, Onoda-shi, Japan, assignors to Ube Industries, Ltd., Ube-shi, Japan

No Drawing. Filed Dec. 9, 1968, Ser. No. 782,424

Int. Cl. C08f 1/56, 3/10

U.S. Cl. 260—93.7 7 Claims
A process for producing crystalline poly(alphaolefins) which comprises polymerizing alpha-olefins by contacting them with a three-component catalyst system obtained from an organoaluminum compound, a titanium halide and a mercaptide of a metal selected from the class consisting of the metals of Groups Ia and b, IIb, IVb, VIIa and VIII of the Periodic Table of Elements.

3,574,180

PROCESS FOR SEPARATING STARCH AND PROTEIN FROM WHEAT FLOUR WHEREIN THE FLOUR IS AGITATED WITH WATER AND NH₄OH AND CENTRIFUGATION IS APPLIED TO THE RESULTING SLURRY

Philip H. Johnston, San Lorenzo, and David A. Fellers, El Cerrito, Calif., assignors to the United States of America as represented by the Secretary of Agriculture

No Drawing. Filed Apr. 23, 1968, Ser. No. 723,610

Int. Cl. A23j 1/12

U.S. Cl. 260—112 4 Claims
Procedure for separating the starch and protein components of wheat flour wherein the flour is agitated with water and ammonium hydroxide, and centrifugation is applied to the resulting slurry.

3,574,181

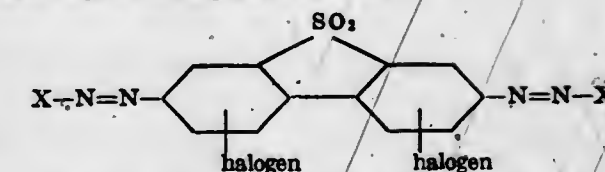
DISAZO DYES

Willy Forter, Allschwil, Basel-land, and Fritz Kehrler, Basel, Switzerland, assignors to Sandoz Ltd. (also known as Sandoz A.G.), Basel, Switzerland

No Drawing. Filed Jan. 18, 1968, Ser. No. 698,690

Int. Cl. C09b 33/02

U.S. Cl. 260—152 3 Claims
Disazo dyes having the formula



where the two X symbols stand for the radicals of identical or different coupling components which are free from water-solubilizing groups, are useful for the pigmentation or printing of natural and synthetic materials.

3,574,182

CALCIUM SALT OF 6-BROMO-1-(1'-SULFO-2'-NAPHTHYLAZO)-2-NAPHTHOL

Freeman B. Jones, Jr., East Lansing, Mich., assignor to Xerox Corporation, Rochester, N.Y.
Filed Feb. 1, 1967, Ser. No. 613,295
Int. Cl. C09b 29/16, 45/22; D06g 1/10

U.S. Cl. 260—195

1 Claim

Compounds consisting of a group of metal salts of 1-(1'-sulfo-2'-naphthylazo)-2-naphthols. The compounds are useful as electrically photosensitive magenta pigment particles in photoelectrophoretic imaging such as shown in U.S. Pat. 3,384,565, issued May 21, 1968, to V. Tulagin and L. Carreira.

3,574,183

WATER-INSOLUBLE MONOAZO DYESTUFFS

Winfried Kruckenberg, Leverkusen, Germany, assignor to Farbenfabriken Bayer Aktiengesellschaft, Leverkusen, Germany

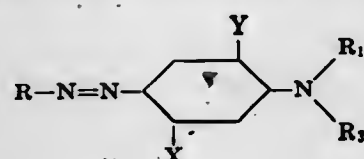
No Drawing. Filed Feb. 3, 1967, Ser. No. 613,750
Claims priority, application Germany, Feb. 12, 1966, F 48,416

Int. Cl. C09b 29/08; D06p 1/02

U.S. Cl. 260—207.1

3 Claims

Azo dyestuffs useful in dyeing and printing hydrophobic fibrous materials are provided which correspond to the formula



wherein R is a cyclic radical; X is acylamino; Y is hydrogen, halogen, alkyl, or an alkoxy radical; R1 is an aliphatic ether radical terminated by an alkoxy carboxy radical; and R2 is either an alkyl radical or an R1 radical.

3,574,184

PROCESS OF PREPARING A FERRIC HYDROXIDE-DEXTRAN COMPLEX

Ranulph Michael Alsop, Alderley Edge, England, and Ian Bremner, Culter, Scotland, assignors to Fisons Pharmaceuticals Limited, Loughborough, Leicestershire, England

No Drawing. Filed May 7, 1968, Ser. No. 727,343
Claims priority, application Great Britain, May 13, 1967, 22,280/67

Int. Cl. C08b 25/04

U.S. Cl. 260—209

7 Claims

Provided is a process for the preparation of a ferric hydroxide-dextran complex. An aqueous solution of a water-soluble ferric salt is slowly neutralized by the addition of alkali at such a rate that from 10 to 90% of the ferric salt is converted to colloidal ferric hydroxide in not less than 30 minutes. The neutralization is carried out at from 20 to 40° C. An aqueous solution of a dextran is added to the resultant solution and the pH adjusted to 4 to 7. Heating the solution at at least 50° C. effects formation of a stable ferric hydroxide-dextran complex.

3,574,185

ACYL DERIVATIVES OF ERYTHROMYCIN OXIME

Zrinka Tamburasev, Gabrijela S. Vazdar-Kobrehel, and Slobodan Djokic, Zagreb, Yugoslavia, assignors to PLIVA Pharmaceutical and Chemical Works, Zagreb, Yugoslavia

No Drawing. Filed July 16, 1968, Ser. No. 745,104
Claims priority, application Yugoslavia, Aug. 3, 1967, 1,540/67

Int. Cl. C07c 47/18

U.S. Cl. 260—210

16 Claims

Mono- and bis-carboxylic acid acylates of erythromycin oxime; useful as antibiotics.

3,574,186

PROCESS FOR MAKING 7-CHLORO-7-DEOXYLINCOMYCIN AND RELATED COMPOUNDS AND NOVEL INTERMEDIATES PRODUCED THEREIN

Robert D. Birkenmeyer, Comstock Township, Kalamazoo County, and Fred Kagan, Kalamazoo, Mich., assignors to The Upjohn Company, Kalamazoo, Mich.

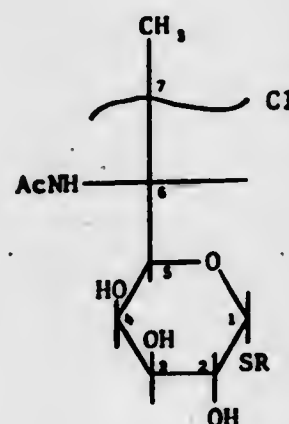
No Drawing. Continuation-in-part of application Ser. No. 696,513, Jan. 9, 1968. This application Oct. 8, 1969, Ser. No. 864,893

Int. Cl. C07c 47/18

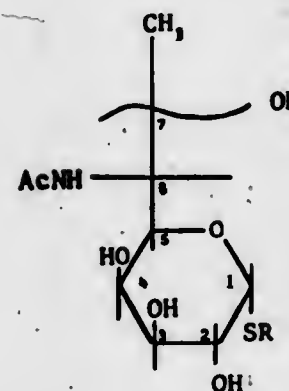
U.S. Cl. 260—210

22 Claims

Compounds of the formula:

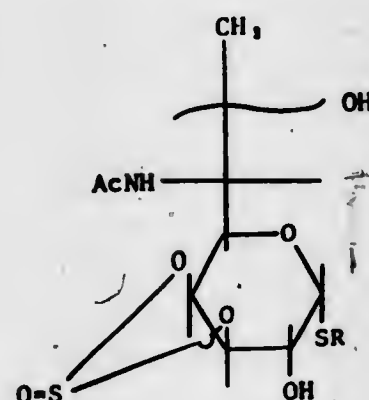


are prepared by replacing by chlorine, the 7-hydroxy of a compound of the formula:

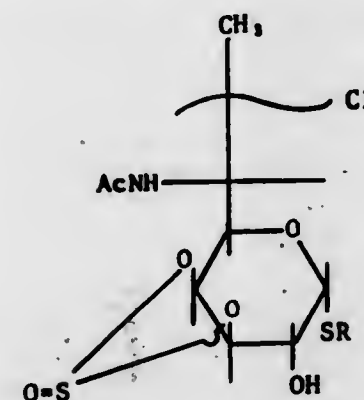


The replacement is effected by (1) mixing the starting compound of Formula II with thionyl chloride, (2) heating with thionyl chloride, and (3) hydrolysis.

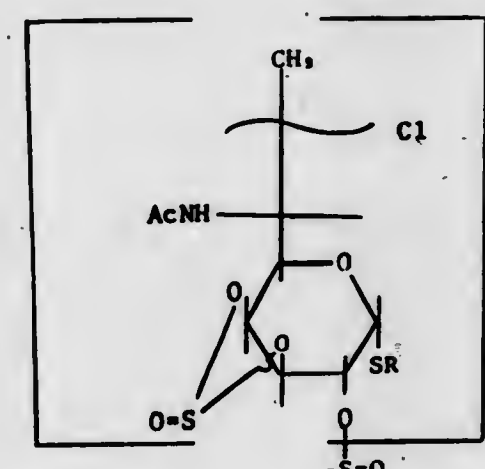
Thionyl chloride without heating converts the compounds of Formula II to a 3,4-O-cyclic sulfite of the formula:



Heating with thionyl chloride converts compounds of Formulas II and III to a 3,4-O-cyclic sulfite of the formula:



and a bis-sulfite of the formula:



Solvolysis converts compounds of Formulas IV and V to a 7-chloro-7-deoxylincomycin of Formula I.

3,574,187

PROCESS FOR MAKING ALKYL 7-O-ALKYL-1-THIO-α-LINCOSAMINIDES AND PRODUCTS THEREOF

Brian Bannister, Kalamazoo, Mich., assignor to The Upjohn Company, Kalamazoo, Mich.

No Drawing. Filed Nov. 3, 1969, Ser. No. 873,717

Int. Cl. C07c 47/18

U.S. Cl. 260—210

4 Claims

Alkyl 7-O-alkyl-1-thio-α-lincosaminides useful as intermediates for preparing antibacterially active 7-O-alkyl-lincosamycins are prepared by converting 2'-hydroxyethyl 7-O-methyl-1-thio-α-lincosaminide to the corresponding 1-bromo sugar then replacing the bromo group by an alkyl mercapto group while the 2-, 3-, and 4-hydroxyl groups and the 6-amino group are covered by protective groups, and then removing the protective groups; or by acylating an alkyl 6-N,7-O-ethylidene-3,4-O-isopropylidene-1-thio-α-lincosaminide to form the 2-acylate thereof, hydrolyzing the 6-N,7-O-ethylidene grouping to form alkyl 2-O-acyl-6-N-acetyl-3,4-O-isopropylidene-1-thio-α-thiolincosaminide, alkylating the 7-hydroxy group to form alkyl N-acetyl-7-O-alkyl-1-thio-α-lincosaminide, and removing the N-acetyl group by hydrazinolysis and the 3,4-isopropylidene group by hydrolysis to form the desired alkyl 7-O-alkyl-1-thio-α-lincosaminide.

3,574,188

PROCESS FOR PREPARING CARBOXYMETHYL CELLULOSE OR ITS ALKALI SALT OF HIGH VISCOSITY

Kikuo Takehara, Kyoto-shi, Hisakazu Senda, Kuze-gun, and Kazuhiro Hirano, Kyoto-shi, Japan, assignors to Dai-ichi Kogyo Sanyaku Co., Ltd.

No Drawing. Filed Feb. 27, 1970, Ser. No. 15,196

Int. Cl. C08b 11/00

U.S. Cl. 260—231

5 Claims

Cellulose or alkali cellulose is treated with trichloroacetic acid or an alkali salt thereof.

3,574,189

SYNTHETIC PENICILLINS

Kenneth Butler, Waterford, Conn., assignor to Pfizer Inc., New York, N.Y.

No Drawing. Filed Jan. 5, 1968, Ser. No. 695,851

Int. Cl. C07d 99/16

U.S. Cl. 260—239.1

3 Claims

Arylchloro (and bromo) carbonyl ketenes, arylcarboxy ketene esters and aryl carbothiolic phenylesters derived therefrom, methods for their preparation and the use of the esters as acylating agents for the production of esters of α-carboxy- and α-carbothiolic arylacetyl derivatives of 6-aminopenicillanic acid and, by hydrolysis, the corresponding acid derivatives are described.

3,574,190

PENICILLIN DERIVATIVES AND THEIR SALTS

Erkki Juhani Honkanen, Timo Kosunen, Joachim Ernst Alberty, and Jaakko Juhani Hukki, Helsinki, Finland, assignors to Laaketehtas Orion Oy, Helsinki, Finland

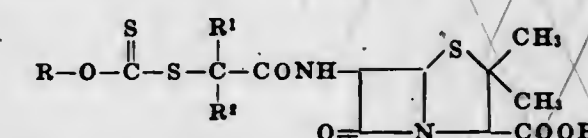
No Drawing. Filed May 12, 1969, Ser. No. 823,996

Int. Cl. C07d 99/16

U.S. Cl. 260—239.1

28 Claims

Penicillins having the formula



are prepared by reacting 6-aminopenicillanic acid or its salt with a specific reactive derivative of a carbonic acid.

3,574,191

METHOD FOR THE PRODUCTION OF 1,3,4,5-TETRAHYDRO-1,4-BENZODIAZEPINE DERIVATIVES

Pasquale Domenico Sorrentino, Kastrop, Denmark, assignor to A/S Dumex (Dumex Ltd.), Copenhagen, Denmark

No Drawing. Continuation-in-part of applications Ser. No. 683,106, Nov. 15, 1967, and Ser. No. 709,864, Mar. 4, 1968. This application Jan. 26, 1970, Ser. No. 5,911

Int. Cl. C07d 41/00; 41/06, 53/00

U.S. Cl. 260—239.3

1 Claim

1,3,4,5-tetrahydro-5-phenyl-2H-1,4-benzodiazepin-2-ones are produced by reacting correspondingly substituted 2-amino-benzhydryl phthalimides with a halogen-acetyl halide to transform the amino group into a halogen-

acetylimide group, establishing closure of the diazepine ring by refluxing with an alkali carbonate solution and cleaving off the phthalic acid group with hydrogen bromide in glacial acetic acid solution.

3,574,192

CHLORINATION OF CAPROLACTAM

Yasuo Shibahara, Kyoto, Motoyuki Suzuki, Hirakata, Yoshihiro Hayashi, Kyoto, and Toshiro Fukuda, Otsu, Japan, assignors to Sanyo Chemical Industries, Ltd., Kyoto, Japan

No Drawing. Filed Mar. 12, 1968, Ser. No. 712,390

Claims priority, application Japan, Mar. 30, 1967, 42/20,141

Int. Cl. C07d 41/06

U.S. Cl. 260—239.3

4 Claims

α -Chlorinated derivatives of ϵ -caprolactam or of N-substituted ϵ -caprolactam (e.g. N-benzoyl- ϵ -caprolactam, etc.) are prepared by chlorinating the starting compound with chlorine (gas or solution in organic solvent) in the presence of (a) phosphorus, phosphorus halide, phosphorus oxyhalide, sulfur halide, sulfur oxyhalide, phosphorus thiohalide or complexes thereof with metal halide, and (b) at least one N,N-di-substituted formamide (N,N-di-lower alkyl formamide, N-lower alkyl-N-alkyl formamide, etc.). The products are useful as intermediates for preparing lysine.

3,574,193

PROCESS FOR THE PRODUCTION OF LACTAMS
Otto Immel, Krefeld-Uerdingen, and Hans-Helmut Schwarz, Krefeld, Germany, assignors to Farbfabriken Bayer Aktiengesellschaft, Leverkusen, Germany

No Drawing. Filed Aug. 14, 1969, Ser. No. 850,223

Claims priority, application Germany, Aug. 24, 1968, P 17 95 226.0

Int. Cl. C07d 41/06, 29/42

U.S. Cl. 260—239.3

1 Claim

Process for the production of lactams by catalytic rearrangement of cyclic ketoximes having 5-12 C-atoms in the ring in the gas phase, using as a catalyst a mixture of boron nitride and boric acid or boron nitride and boron trioxide.

3,574,194

1-(α -ETHYL - α - METHYL-SUCCINIMIDO) - 4-SULPHONAMIDOBENZENE AND RELATED COMPOUNDS

Rolf Wilhelm Pfirrmann, Lucerne, Switzerland, assignor to Ed. Geistlich Sohne AG fur Chemische Industrie, Wolhusen, Lucerne, Switzerland

No Drawing. Continuation of application Ser. No. 578,462, Sept. 12, 1966. This application Nov. 26, 1969, Ser. No. 873,741

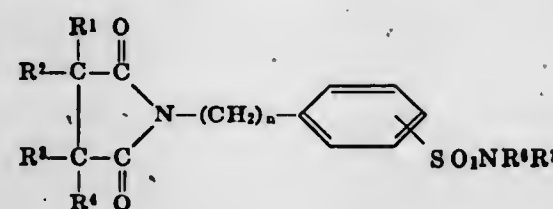
Claims priority, application Great Britain, Oct. 19, 1965, 44,246/65

Int. Cl. A61k 27/00; C07d 27/10

U.S. Cl. 260—239.6

10 Claims

A compound is provided selected from (a) compounds of the formula



wherein R¹, R², R³ and R⁴ are each hydrogen or alkyl of 1-5 carbon atoms, at least one of R¹, R², R³ and R⁴ being alkyl of 1-5 carbon atoms and R⁶ and R⁷ are each hydrogen, thiazolyl, pyrimidyl, alkyl of 1-5 carbon atoms, acetyl, β -hydroxyethyl, n-butylcarbonyl or ethoxycarbonyl-methyl or R⁶ and R⁷ together with the nitrogen atom to which they are attached are piperidyl or piperazyl and n is 0 or 1; (b) compounds corresponding to said compounds (a) wherein the —SO₂NR⁶R⁷ group is joined to a substituent on an adjacent carbon atom of the benzene ring to form the chain —CO—NH—SO₂—; (c) compounds corresponding to said compounds (a) and (b) substituted on the benzene ring by at least one of halogen, lower alkyl, alkoxy of 1-5 carbon atoms, hydroxy, alkanoyl amido of 1-5 carbon atoms, nitro, amino, carboxyl, acetyl or phenyl lower alkanoyl; and (d) salts of said compounds (a), (b) and (c) with alkali metals, ammonia or amines.

3,574,195

1,3-DIPHENYL-PYRAZOLINES

Manfred Hajek, Leverkusen, Germany, assignor to Farbfabriken Bayer Aktiengesellschaft, Leverkusen, Germany

No Drawing. Filed Jan. 22, 1969, Ser. No. 793,183

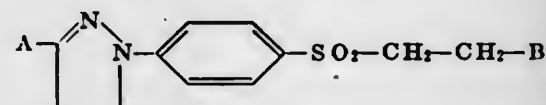
Claims priority, application Germany, Jan. 31, 1968, P 16 70 980.1

Int. Cl. C07c 117/00; C07d 49/10; C09k 1/00

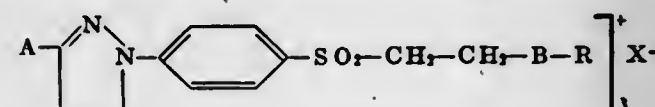
U.S. Cl. 260—239.9

2 Claims

1,3-diphenyl-pyrazoline of the formula



and its quaternization product of the formula



wherein A is a phenyl radical which may be substituted by halogen, alkyl, or alkoxy; B is the radical of a 5-membered nitrogen-containing ring which may be substituted by alkyl, alkoxy, or alkoxy-alkoxy; R is hydrogen, alkyl or aralkyl which may be further substituted by alkyl, alkoxy, or halogen; and X⁻ is a colorless anion. The compounds of this invention are fluorescent and useful as brightening materials or fibers, filaments, films, and the like.

3,574,196

STEROIDAL 1,4-DIENES

Theodore J. Foell, King of Prussia, Richard W. Rees, Newtown Square, and Herchel Smith, Wayne, Pa., assignors to American Home Products Corporation, New York, N.Y.

No Drawing. Continuation-in-part of application Ser. No. 544,800, Apr. 25, 1966. This application Mar. 13, 1967, Ser. No. 622,468

Int. Cl. C07c 169/14, 169/26

U.S. Cl. 260—239.55

34 Claims

Steroids with Δ -1,4 A rings unsubstituted in the 3-position (I) and having adrenocortical, progestational, androgenic and anabolic activity are provided by reducing steroidal Δ -1,4-3-ols (II) or acylates (III). Compounds (II) are provided by reducing steroidal Δ -1,4-3-ones (IV)

with aluminum hydride in the cold. Compounds (I) also are provided by reducing compounds (IV) with warm aluminum hydride and separating them from 1,3- and 2,4-diene byproducts by selective reduction of the byproducts with lithium in ammonia.

3,574,197

PROCESS OF PRODUCING 1-HYDROXY-7 α -METHYL-ESTRADIOL DERIVATIVES

Klaus Prezewowsky and Rudolf Wiechert, Berlin, Germany, assignors to Schering AG, Berlin, Germany

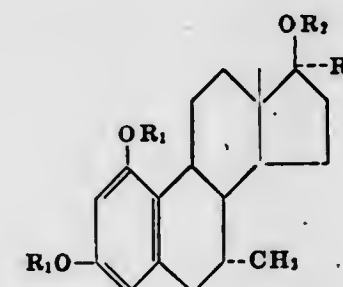
No Drawing. Filed July 9, 1968, Ser. No. 743,315

Int. Cl. C07c 173/00

U.S. Cl. 260—239.55

18 Claims

1-hydroxy-17 α -methyl-estradiol derivatives of the general formula



wherein R₁ and R₂ represent identical or different and designate hydrogen, a lower alkyl or saturated oxygen-heterocyclic radical or a physiological harmless acid radical, and R₃ represents hydrogen or a saturated or unsaturated lower alkyl radical, characterized in that as known in a manner in itself in 1-hydroxy-7 α -methyl estrone, whose hydroxy groups may alternatively be present in esterified or etherified form, hydrogen or a saturated or unsaturated, possibly halogenated hydrocarbon is added to the 17-positioned keto groups; and subsequently free esterified or etherified hydroxy groups are hydrolytically divided, esterified or etherified, depending on the ultimately desired significance of R₁ and R₂, are produced such as by the addition of hydrogen to the 17-positioned carbonyl group in the D ring by hydration in the presence of a catalyst.

3,574,198

(ANDROST-17 β -YL)- α -PYRONES AND PROCESS FOR THEIR MANUFACTURE

Kurt Radscheit, Kelkheim, Taunus, Ulrich Stache, Hofheim, Taunus, Werner Fritsch, Neuenhain, Taunus, and Werner Haede, Hofheim, Taunus, Germany, assignors to Farbwerke Hoechst Aktiengesellschaft vormals Meister Lucius & Bruning, Frankfurt am Main, Germany

No Drawing. Filed June 11, 1968, Ser. No. 735,964

Claims priority, application Germany, June 16, 1967, F 52,707; Aug. 25, 1967, F 53,332

Int. Cl. C07c 173/00

U.S. Cl. 260—239.57

3 Claims

(Androst-17 β -yl)- α -pyrones, cardioactive per se and useful as intermediates in the manufacture of scillarenone and scillarenin, and methods for making the same by ring closure of 20-alkoxymethylene-21-carbalkoxymethylene or 20-formyl-21-carbalkoxymethylene steroids derived from 21-dialkoxy-20-keto steroid starting compounds.

3,574,199

6-(AMINOALKYL- AND AMINOALKYLIDENE)-1,1a,6,10b - TETRAHYDRO-DIBENZO[a,e]CYCLOPROPA[c]CYCLOHEPTENES

William E. Coyne and John W. Casic, Skokie, Ill., assignors to G. D. Searle & Co., Chicago, Ill.

No Drawing. Continuation-in-part of application Ser. No. 733,261, May 31, 1968. This application June 28, 1968, Ser. No. 740,977

Int. Cl. C07c 87/28; C07d 51/70

U.S. Cl. 260—240

6 Claims

1,1a,6,10b - tetrahydrodibenzo [a,e]cyclopropa[c]cycloheptenes having an aminoalkyl or an amino alkylidene substituent at the 6-position are described herein. They are prepared by starting from the appropriate 1,1a,6,10b-tetrahydrodibenzo[a,e]cyclopropa[c]cyclohepten-6-one. They are useful as antidepressants, and as anti-bacterial, anti-protozoal, and antialgal agents.

3,574,200

BASIC DYESTUFFS

Alfred Brack, Leverkusen, Germany, assignor to Farbfabriken Bayer Aktiengesellschaft, Leverkusen, Germany

No Drawing. Filed Oct. 24, 1968, Ser. No. 770,408

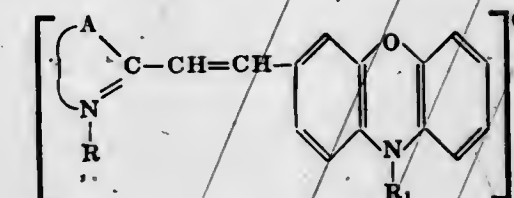
Claims priority, application Germany, Nov. 2, 1967, P 16 44 674.5

Int. Cl. C09b 23/00

U.S. Cl. 260—240

12 Claims

Dyestuffs are produced having the formula



in which A denotes the residual member of a heterocyclic 5- or 6-membered ring or a heterocyclic 5- or 6-membered ring carrying further anellated rings; R stands for hydrogen, an alkyl, aralkyl, cycloalkyl or aryl radical or for a dialkylamino group, and R being a residue further linked to A or to a ring anellated to A; R₁ represents an alkyl, aralkyl, cycloalkyl or aryl radical; X denotes an anionic radical; which dyestuffs are particularly adapted for dyeing, printing and mass dyeing of synthetic and semi-synthetic materials or for the production of inks and pastes and are characterized in such uses as being extremely fast.

3,574,201

5-NITROFURYL-1,2,4-OXADIAZINE DERIVATIVES

Hermann Breuer, Regensburg, Germany, assignor to E. R. Squibb & Sons, Inc., New York, N.Y.

No Drawing. Filed July 30, 1969, Ser. No. 846,221

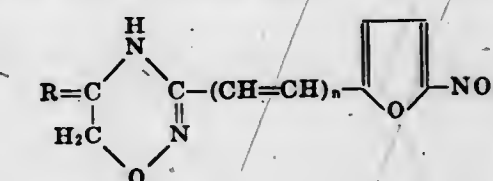
Claims priority, application Germany, Sept. 27, 1968, P 17 95 410.8

Int. Cl. C07d 87/52

U.S. Cl. 260—240

10 Claims

5-nitrofuryl-1,2,4-oxadiazines of the formula

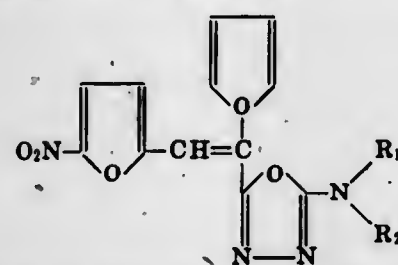


wherein R is oxygen, an imino group or a lower alkanoyl-imino group and n is zero or one, are useful as antimicrobial agents. A 3-(5-nitro-2-furyl)-5-halomethyl-1,2,4-oxadiazole, upon treatment with aqueous alkali in a solvent or with liquid ammonia, yields, respectively, a compound of the above formula wherein R is oxygen or imino. The imino group may then be acylated.

3,574,202

NOVEL NITROFURAN DERIVATIVE AND A PROCESS FOR THE PRODUCTION THEREOF
Ichiro Hirao and Yasuhiko Kato, Kitakyushu-shi, and Ryuzo Ueno, Nishinomiyashi, Japan, assignors to Kabushiki Kaisha Ueno Sanyaku Oyo Kenkyujo, Osaka, Japan
No Drawing. Filed May 9, 1967, Ser. No. 637,061
Claims priority, application Japan, May 13, 1966, 41/30,527; July 21, 1966, 41/47,294; Feb. 7, 1967, 42/7,571; Feb. 28, 1967, 42/12,988, 42/12,989
Int. Cl. C07d 85/54

U.S. Cl. 260—240.1 4 Claims
A nitrofur derivative having the formula



wherein each of R₁ and R₂ is hydrogen or acyl group derived lower fatty acid, or both of R₁ and R₂ are hydroxy methyl group; and process for preparation of said nitrofur derivative comprising reacting β-(5-nitro-2-furyl)-α-(2'-furyl)-acryloyl hydrazine with cyanogen halide, and if desired reacting the product with acylating agent, said nitrofur derivatives are useful as chemotherapeutic agent, antiseptic, food preservative and additive to livestock feed.

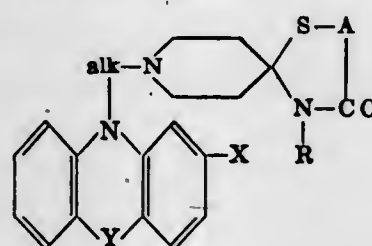
3,574,203

2-SUBSTITUTED 5,6-DIHYDRO-4H-1,3-THIAZINES
Lloyd H. Conover, Quaker Hill, and James W. McFarland, Lyme, Conn., assignors to Chas. Pfizer & Co., Inc., New York, N.Y.
No Drawing. Filed Oct. 14, 1965, Ser. No. 496,138
Int. Cl. C07d 51/16, 27/22, 91/32, 93/06
U.S. Cl. 260—243 1 Claim
A series of 5,6-dihydro-2-(substituted)ethyl- and 5,6-dihydro-2-(substituted)vinyl-4H-1,3-thiazines and their non-toxic acid addition salts useful in the veterinary control of helminthiasis.

3,574,204

PIPERIDINE SPIRO COMPOUNDS
Michio Nakanishi, Oita, Katsuo Arimura and Tatsumi Tsumagari, Fukuoka, and Masami Shiroki, Oita, Japan, assignors to Yoshitomi Pharmaceutical Industries, Ltd., Osaka, Japan
No Drawing. Continuation-in-part of application Ser. No. 675,074, Oct. 13, 1967. This application July 3, 1969, Ser. No. 839,046
Int. Cl. C07d 93/14

U.S. Cl. 260—243 21 Claims
The piperidine spiro compounds of the formula:



wherein X is H, Cl, CH₃, CF₃, CH₃O—, CH₃S— or CH₃CO—; Y is —S— or —CH₂CH₂—; alk is alkylene of 2 to 4 carbon atoms (e.g. ethylene, propylene, trimethylene or 2-methyltrimethylene); A is methylene, ethylene or ethylidene; and R is H or lower alkyl of at most 4 carbon atoms (e.g. methyl, ethyl, propyl or butyl) are useful as tranquilizers.

3,574,205

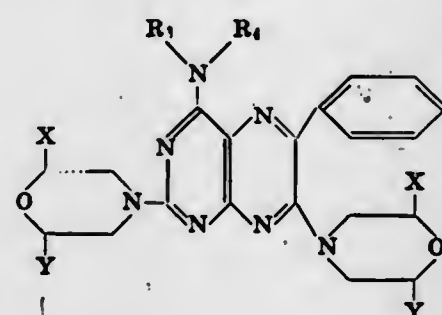
3-AMINO-2-(AMINOMETHYL)PROPIONAPHTHONES
Malcolm W. Moon, Kalamazoo, Mich., assignor to The Upjohn Company, Kalamazoo, Mich.
No Drawing. Filed July 3, 1967, Ser. No. 651,121
Int. Cl. C07d 87/34

U.S. Cl. 260—246 11 Claims
Certain new 3-amino-2-(aminomethyl)propionaphthones are active against bacteria and fungi. The amino groups may be broadly selected from disubstituted amino and saturated heterocyclic amino, and the naphthyl group may be substituted with alkyl, alkoxy, nitro, or halogen. Antifungal activity has been demonstrated against the bean root rot fungi, *Fusarium solani* f. *phaseoli* and *Rhizoctonia solani*.

3,574,206

2,7-DIMORPHOLINO-4-AMINO-6-PHENYL-PTERIDINES
Josef Roch, Biberach (Riss), Germany, assignor to Boehringer Ingelheim G.m.b.H., Ingelheim am Rhein, Germany
No Drawing. Continuation-in-part of application Ser. No. 541,973, Apr. 12, 1966. This application Apr. 1, 1968, Ser. No. 717,906
Claims priority, application Germany, Apr. 15, 1965, P 16 20 498.1
Int. Cl. C07d 87/40

U.S. Cl. 260—246 6 Claims
Compounds of the formula



wherein

X and Y are each hydrogen or methyl, R₃ is alkyl of 1 to 4 carbon atoms, benzyl, cyclohexyl or monohydroxyalkyl of 2 to 3 carbon atoms, and R₄ is alkyl of 2 to 6 carbon atoms in which at least one of the carbon atoms except that adjacent to the nitrogen atom is monohydroxy-substituted;

the compounds are useful as coronary dilators in warm-blooded animals.

3,574,207

PROCESS FOR PREPARING MORPHOLINES
Zdzislaw J. Dudzinski, Clifton, N.J., assignor to Millmaster Onyx Corporation, New York, N.Y.
No Drawing. Original application May 8, 1967, Ser. No. 636,664. Divided and this application Jan. 2, 1970, Ser. No. 412
Int. Cl. C07d 87/26

U.S. Cl. 260—247 6 Claims
Tertiary aliphatic amines are prepared by the reaction of 1-chloroalkanes or 1-bromoalkanes with secondary amines in a solventless environment at a temperature at

least as high as room temperature, but preferably ranging from about 100° to 160° C., and at a pressure of about ambient for high boiling reactants and about 285 to 350 p.s.i. for low boiling or gaseous reactants. An alkali is preferably also present in the reaction mixture.

3,574,208

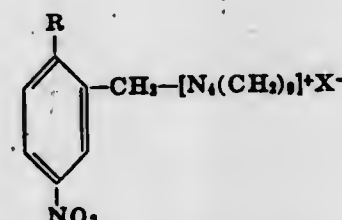
3-TERTIARYAMINO PROPIONYL-BENZO FURAN-2-CARBOXYLIC ACID
Janos Zergenyi, Riehen, and Ernst Habicht, Oberwil, Switzerland, assignors to Geigy Chemical Corporation, Ardsley, N.Y.
No Drawing. Filed July 22, 1968, Ser. No. 746,268
Int. Cl. C07d 87/36

U.S. Cl. 260—247.2 5 Claims
5-(2-di(lower)alkylaminomethyl-(lower)alkanoyl)-benzofuran-2-carboxylic acids and their pharmaceutically acceptable salts with acids and bases are prepared by Mannich condensation of 5-lower-alkanoyl-substituted benzofuran-2-carboxylic acids with paraformaldehyde and secondary amines. A typical embodiment is 5-(2-dimethylaminomethyl-butyl)-6-methyl-benzofuran-2-carboxylic acid hydrochloride. A method of producing a diuretic and a saluretic effect comprising administration of said compounds to warm-blooded animals as well as pharmaceutical compositions containing said compounds are provided.

3,574,209

QUATERNARY AMMONIUM SALTS OF METHENAMINE
Hans Suter, Dorfingen, and Hans Zutter, Schaffhausen, Switzerland, assignors to Schweizerisches Serum- und Impfstoffinstitut und Institut zur Erforschung von Infektionskrankheiten, Bern, Switzerland
No Drawing. Filed May 26, 1969, Ser. No. 827,950
Claims priority, application Switzerland, June 27, 1968, 9,641/68
Int. Cl. C07d 55/52

U.S. Cl. 260—248.5 3 Claims
Quaternary ammonium salts of the formula



wherein R is hydroxy or lower alkoxy, and X⁻ is the anion of a physiologically tolerated acid at least as strong as phosphoric acid have been found to have antimicrobial effects on many types of pathogenic microorganisms which cause infections of the intestinal and urinary tract.

3,574,210

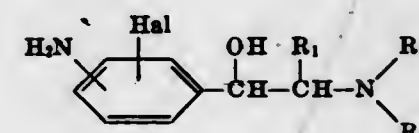
2,4-DISUBSTITUTED-6-NITRO- AND 6-AMINOQUINAZOLINES
Hermann Breuer, Regensburg, Erich Cohnen, Tegernheim, and Egon Roesch, Regensburg, Germany, assignors to E. R. Squibb & Sons, Inc., New York, N.Y.
No Drawing. Filed July 12, 1968, Ser. No. 744,336
Claims priority, application Germany, July 13, 1967, P 16 70 445.3
Int. Cl. C07d 51/48

U.S. Cl. 260—251 7 Claims
This invention relates to certain new 2,4-disubstituted-6-aminoquinazolines and the 2,4-disubstituted-6-nitroquinazolines from which they are produced. The former are useful as anti-inflammatory agents.

3,574,211

1-(AMINO-MONOHALO-PHENYL)-2-AMINO-ALKANOLS AND SALTS
Johannes Keck, Gerd Kruger, and Hans Machleidt, Biberach, Riss, Klaus Noll, Warthausen-Oberhofen, and Gunther Engelhardt and Albrecht Eckenfels, Biberach, Riss, Germany, assignors to Boehringer Ingelheim G.m.b.H., Ingelheim am Rhein, Germany
No Drawing. Filed May 1, 1968, Ser. No. 725,945
Claims priority, application Germany, May 9, 1967, T 33,824
Int. Cl. C07c 91/22; C07d 57/36

U.S. Cl. 260—253 4 Claims
1-(amino-monohalo-phenyl)-2-amino-alkanols of the formula



wherein

R₁ is hydrogen or alkyl of 1 to 3 carbon atoms, R₂ and R₃ are each hydrogen, lower alkyl, lower alkenyl, hydroxy-lower alkyl, lower alkoxy-lower alkyl, cyclohexyl, phenyl or benzyl, and Hal is chlorine, bromine or iodine,

and non-toxic, pharmacologically acceptable acid addition salts thereof, useful as analgesics in warm-blooded animals.

3,574,212

QUINAZOLINYLUREAS
Hans-Jurgen Hess, Groton, Conn., assignor to Pfizer Inc., New York, N.Y.
No Drawing. Filed Feb. 2, 1968, Ser. No. 702,534
Int. Cl. C07d 51/48

U.S. Cl. 260—256.4 6 Claims
1-[2-dimethylamino]-6,7-dimethoxy-4-quinazolinyl]-3-methylurea and similar 1-(2-amino-4-quinazolinyl)ureas are hypotensive agents. Reacting alkyl isocyanate with a 2-amino-4-(unsubstituted amino)quinazoline affords the 1-(4-quinazolinyl)-3-alkylureas; reacting a 2-amino-4-(unsubstituted amino)quinazoline with inorganic cyanate and hydrochloric acid affords the 1-(4-quinazolinyl)urea.

3,574,213

4,6-DI(LOWER ALKYL) PYRIMIDIN-2-YL-PHTHALAZINE
John J. D'Amico, Dunbar, W. Va., assignor to Monsanto Company, St. Louis, Mo.
No Drawing. Application Oct. 11, 1967, Ser. No. 705,572, now Patent No. 3,454,572, which is a division of application Ser. No. 513,558, Dec. 13, 1965, now Patent No. 3,379,700. Divided and this application Oct. 1, 1968, Ser. No. 766,026
Int. Cl. C07d 57/00

U.S. Cl. 260—256.5 2 Claims
S-(phthalazin-1-yl)- and S-(1H-1,2,4-triazol-5-yl)-thioazoles, thiopyrimidines, and dithiocarbamates are described which are useful for accelerating vulcanization of rubber.

3,574,214

HYPOCHLORITE PROCESS FOR CHLOROURACILS
Earl W. Cummins, Wilmington, Del., assignor to E. I. du Pont de Nemours and Company, Wilmington, Del.
No Drawing. Filed Oct. 16, 1967, Ser. No. 675,324
Int. Cl. C07d 51/30

U.S. Cl. 260—260 7 Claims
A new process is described for making 5-chloro-3,6-disubstituted uracils by reacting an aqueous solution of

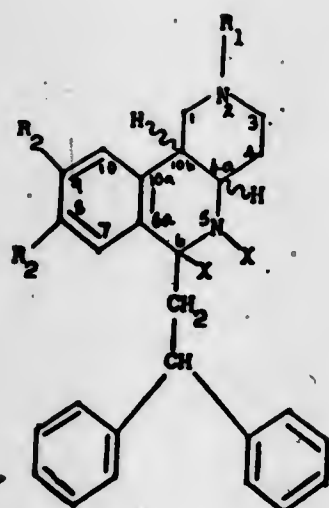
an alkali metal salt of a 3,6-disubstituted uracil with aqueous sodium or potassium hypochlorite. After the hypochlorite chlorination has been completed, acid is added to produce crystals of the 5-chloro-3,6-disubstituted uracil. Subsequently the solid product is recovered by filtration or centrifugation and washed and dried.

3,574,215

NAPHTHYRIDINE DERIVATIVE COMPOUNDS HAVING A BENZO[*c*][1,6]NAPHTHYRIDINE STRUCTURE

Adolf Lindenmann, Basel, and Rudolf Süss, Bettingen, Switzerland, assignors to Sandoz Ltd., also known as Sandoz A.G., Basel, Switzerland
No Drawing. Filed Aug. 16, 1967, Ser. No. 660,910
Claims priority, application Switzerland, Aug. 18, 1966, 11,953/66; Dec. 29, 1966, 18,769/66
Int. Cl. C07d 35/10

U.S. Cl. 260—288 11 Claims
The invention provides naphthyridine derivatives of Formula I,



in which

R₁ signifies lower alkyl or benzyl, each of the two symbols
R₂ signifies hydrogen, hydroxy or lower alkoxy, or the symbols
R₃ together signify methylenedioxy, and each of the two symbols
X signifies hydrogen, or the symbols
X together signify a second bond between the carbon and the nitrogen atom,
and their salts with inorganic or organic acids.

3,574,216

QUATERNARY 3-PYRIDINIUM-2-QUINOLONES

Stanley C. Bell, Penn Valley, Pa., assignor to American Home Products Corporation, New York, N.Y.
No Drawing. Filed Apr. 12, 1968, Ser. No. 721,095
Int. Cl. C07d 33/50

U.S. Cl. 260—288 3 Claims
Quaternary 3-pyridinium-2-quinolones, particularly inner salts of 3-pyridinium 6-chloro-1,2-dihydro-4-substituted-2-oxoquinolones (I), especially the 4-(2-chloro-5-sulfamoylphenyl) derivative thereof bearing a 3-[1-hydroxy-N-(p-tolylsulfonyl)formamidoyl] group on the pyridinium ring thereof (Ia), and the 4-hydroxy derivative thereof (Ib), are prepared from the corresponding 2-pyridinium acetanilide (II) by heating until cyclization is substantially complete or by treatment with a base, respectively. Compounds (I) and (II) are pharmacologically active, especially as central nervous system depressants.

PROCESS FOR SUBSTITUTING AROMATICALLY BOUND HALOGEN BY HYDROGEN

Wilhelm Mack, Olching-Upper Bavaria, Germany, assignor to Consortium für Elektrochemische Industrie G.m.b.H., Munich, Bavaria, Germany
No Drawing. Filed May 29, 1968, Ser. No. 732,889
Claims priority, application Germany, June 5, 1967, C 42,539
Int. Cl. C07b 1/00

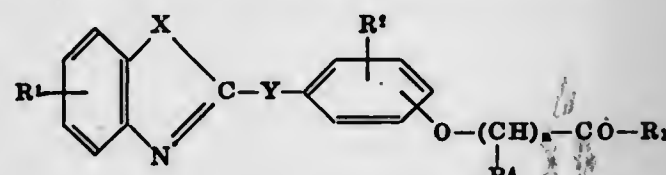
U.S. Cl. 260—293.4 7 Claims
This invention relates to replacing aromatically bound halogen by hydrogen in aromatic polyhalogen compounds, and it has for its object to provide a novel and efficient process for this purpose.

3,574,218

2-ARYL- OR ARALKYL-SUBSTITUTED BENZAZOLE DERIVATIVES

Kalman Hldeg, Olga Hldeg nee Hankovszky, Laszlo Szekeres, Gyula Mehes, and Gyula Papp, Pecs, Hungary, assignors to Egyesult Gyogyszer-és Tapaszergyar, Budapest, Hungary
No Drawing. Continuation-in-part of application Ser. No. 643,069, June 2, 1967. This application Aug. 11, 1969, Ser. No. 849,145
Int. Cl. C07d 85/48; 91/44, 49/38

U.S. Cl. 260—293.4 1 Claim
New compounds having the general formula



wherein R¹ is selected from the group consisting of hydrogen and chlorine, R² is selected from the group consisting of hydrogen and lower alkoxy, R³ is selected from the group consisting of piperidino and α-methyl-benzylamino radicals, R⁴ is selected from the group consisting of hydrogen and methyl radical, X is selected from the group consisting of =O, =S, and =NH, Y is selected from the group consisting of direct bond and alkylene having from 1 to 2 carbon atoms, and n is selected from the group consisting of 1 and 2, and the positions of R³ and of the ether bond in the phenyl radical are selected from the group consisting of 2', 3', and 4', and their acid addition salts and quaternary ammonium derivatives. These compounds possess valuable pharmacological properties. They show anti-anginose, coronary vasodilator and peripheral circulation enhancing effects.

3,574,219

1-(β-HYDROXYPHENETHYL)-2,3-DIMETHYL-3-(3-HYDROXYPHENYL)-PIPERIDINE

Hiroshi Kugita and Hirozumi Inoue, Tokyo-to, and Goro Hayashi, Osaka-fu, Japan, assignors to Tanabe Seryaku Co., Ltd., Osaka, Japan
No Drawing. Filed Sept. 16, 1968, Ser. No. 762,354
Claims priority, application Japan, Sept. 27, 1967, 42/62,167, 42/62,168
Int. Cl. C07d 29/16

U.S. Cl. 260—294.7 1 Claim
The compound 1-(β-hydroxyphenethyl)-2,3-dimethyl-3-(3-hydroxyphenyl)-piperidine and its acid salts have analgesic activity.

Methods for manufacturing the compound and acid salts including reaction of 2,3-dimethyl-3-(3-hydroxyphenyl)-piperidine with styrene-oxide or reduction of 1-phenacyl-2,3-dimethyl-3-(3-hydroxyphenyl)-piperidine followed by acidification to form the acid salts.

3,574,220

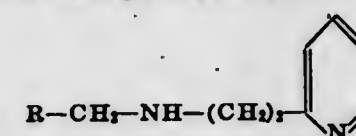
1,7-METHANO-1H-1-BENZAZEPIN-5(4H)-ONES
Stephen I. Sallay, Wynnewood, Pa., assignor to American Home Products Corporation, New York, N.Y.
No Drawing. Original application Oct. 2, 1967, Ser. No. 671,966. Divided and this application Aug. 14, 1969, Ser. No. 870,997
Int. Cl. C07d 39/00

U.S. Cl. 260—294.7 2 Claims
This invention is concerned with new and novel derivatives of iboga alkaloids which are pharmacologically efficacious as central nervous system stimulants. Further, this invention relates to new and novel intermediates for the preparation of iboga alkaloids and their new and novel derivatives by a totally synthetic, commercially applicable process.

3,574,221

DERIVATIVES OF AMINOALKYL PYRIDINES
Olga Hankovszky, Kálmán Hldeg, Gyula Mehes, László Decsi, and Mária Várszegi, Pecs, Hungary, assignors to Egyesult Gyogyszer-és Tapaszergyar, Budapest, Hungary
No Drawing. Continuation-in-part of application Ser. No. 641,164, May 25, 1967. This application Oct. 2, 1969, Ser. No. 863,382
Claims priority, application Hungary, May 28, 1966, EE 1,251
Int. Cl. C07d 31/42

U.S. Cl. 260—294.8 1 Claim
The invention relates to novel 2-pyridylethyl-benzylamine derivatives having the general formula



wherein R is a mono-, di- or trisubstituted phenyl group, and the substituents of the phenyl group can be hydroxy, alkoxy containing 1 or 2 carbon atoms, methylenedioxy, nitro, dimethylamino or halogen groups. These compounds as well as their therapeutically acceptable acid addition salts and quaternary ammonium derivatives possess valuable analgesic and tranquillo-sedative activity.

3,574,222

PREPARATION OF 5-AMINO-1,2,4-OXADIAZOLES
Fernand G. F. Eloy, Rhode St. Genese, and René A. V. Lenaers, Brussels, Belgium, assignors to Mallinckrodt Chemical Works, St. Louis, Mo.
No Drawing. Filed Dec. 29, 1965, Ser. No. 517,433
Int. Cl. C07d 85/52

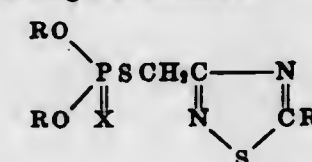
U.S. Cl. 260—296 1 Claim
The preparation of 5-amino-1,2,4-oxadiazoles by reacting the corresponding 5-trihalomethyl-1,2,4-oxadiazole with the corresponding amine. The compounds may be used as curing agents or hardeners for epoxy resin systems and as nematocides.

3,574,223

5-SUBSTITUTED-O,O-DIALKYL-S - [(1,2,4-THIAZOL-3-YL)METHYL] PHOSPHOROTHIOATES AND DITHIOATES

Rudi F. W. Rätz, deceased, late of Hamden, Conn., by Margot I. H. Rätz, executrix, Hamden, and John F. Cronan, Waterbury, Conn., assignors to The Ansul Company
No Drawing. Filed Mar. 15, 1968, Ser. No. 713,545
Int. Cl. C07e 9/16

U.S. Cl. 260—302 17 Claims
Compounds having the formula



wherein R is alkyl; X is oxygen or sulfur; and R' is OR, SR, NH₂, NHR or NR₂ wherein R is alkyl are provided by reacting 5-substituted 3-chloromethyl-1,2,4-thiadiazoles with alkali metal or ammonium salts of dialkyl phosphorothioates and -dithioates. These compounds are useful agricultural chemicals; for example, they are particularly valuable insecticides.

3,574,224

5-METHYLISINDOLO[1,2-b]BENZOTHIAZOL-12-ONE

Hans Hoehn, Regensburg, and Egon Roesch, Lampertheim, Germany, assignors to E. R. Squibb & Sons, Inc., New York, N.Y.
No Drawing. Filed July 12, 1968, Ser. No. 744,304
Int. Cl. C07d 99/06

U.S. Cl. 260—304 1 Claim
This invention relates to 5-methylisindolo[1,2-b]benzothiazol-12-one which is useful as an anti-inflammatory agent.

3,574,225

6-AMINOPENICILLANIC ACID

Jeffery Edward Munden, Horsham, England, assignor to Beecham Group Limited, Brentford, England
No Drawing. Filed Nov. 8, 1966, Ser. No. 592,754
Claims priority, application Great Britain, Nov. 18, 1965, 48,995/65
Int. Cl. C07d 99/18

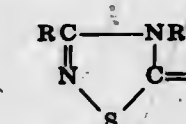
U.S. Cl. 260—306.7 8 Claims
Procedure is provided for removing high molecular weight antigenic material from 6-aminopenicillanic acid produced at least partially by a microbiological process. The procedure is essentially carried out by making up a neutral solution of 6-aminopenicillanic acid, adding a protein denaturant, such as Odex No. 1, introducing an adsorbent such as aluminum hydroxide and obtaining purified 6-aminopenicillanic acid in solution for the preparation of penicillins therefrom or recovering the 6-aminopenicillanic acid by precipitation at the isoelectric point.

3,574,226

SUBSTITUTED Δ²-1,2,4-THIAZADIAZOLIN-5-ONES

Rudi F. W. Rätz, Hamden, and John F. Cronan, Waterbury, Conn., assignors to The Ansul Company
No Drawing. Filed May 19, 1967, Ser. No. 639,648
Int. Cl. C07d 91/60

U.S. Cl. 260—306.7 27 Claims
A novel series of substituted Δ²-1,2,4-thiazadiazolin-5-ones having the formula



wherein R is haloalkyl, diphenylalkyl, triphenylalkyl, substituted diphenylalkyl, substituted triphenylalkyl, aryl-alkoxyalkyl, haloalkoxyalkyl or dialkylaminomethyl and R' is hydrogen, alkyl, alkali metal, ammonium, alkylammonium, hydroxyalkyl or hydroxyalkoxyalkyl has been provided. The thiazadiazolin-5-one wherein R' is hydrogen is provided by the reaction of a 5-halo-1,2,4-thiadiazole with an aliphatic acid; this compound is reacted with a variety of materials to provide various other substituted Δ²-1,2,4-thiazadiazolin-5-ones. The new compounds are useful as agricultural chemicals. For example, they are effective fungicides, herbicides, algacides and insecticides.

3,574,227

ACID-ADDITION SALTS OF TETRAMISOLE
Irene Lesley Rimington and Michael Dudley Ward, Macclesfield, England, assignors to Imperial Chemical Industries Limited, London, England
No Drawing. Filed Dec. 20, 1968, Ser. No. 785,775
Claims priority, application Great Britain, Jan. 8, 1968, 1,056/68

Int. Cl. C07d 99/06

U.S. Cl. 260—306.7 1 Claim
The disclosure concerns virtually tasteless salts of di-tetramisole and l-tetramisole, a process for preparing said salts, and pharmaceutical and veterinary compositions comprising them. A representative salt is di-di-tetramisole embonate.

3,574,228

2-ARYL OXAZOLES
Kevan Brown, Woodley, England, assignor to John Wyeth & Brothers Limited
No Drawing. Filed June 12, 1968, Ser. No. 736,262
Claims priority, application Great Britain, June 14, 1967, 27,382/67

Int. Cl. C07d 85/44

U.S. Cl. 260—307 3 Claims
It has been found that a small group of 2-aryl oxazoles, namely, 2,5-diphenyloxazol-4-ylacetic acid, 2-(p-chlorophenyl)-oxazol-4-ylacetamide, 2-(p-chlorophenyl)-oxazol-4-ylacetic acid, and 2,4-diphenyloxazol-5-ylacetic acid, have antiinflammatory action as shown by standard pharmacological tests on laboratory animals, and are therefore of value in experimental pharmacology and therapy for the control, prevention, and relief of inflammation.

3,574,229

AZIRIDINYL PHTHALOCYANINE PIGMENT
Roy A. Pizzarello, Franklin Lakes, and Alfred F. Schneid and John J. De Lucia, New Milford, N.J., assignors to Inmont Corporation, New York, N.Y.
No Drawing. Continuation-in-part of application Ser. No. 360,099, Apr. 15, 1964, which is a continuation-in-part of applications Ser. No. 62,827, Ser. No. 62,856, and Ser. No. 62,873, all filed Oct. 17, 1960. This application Sept. 26, 1967, Ser. No. 670,758

Int. Cl. C07d 27/76; C09b 47/04

U.S. Cl. 260—314.5 1 Claim
A water-insoluble reactive green pigment which is copper phthalocyanine-3,3',3''-tri-(methylaziridinyl) sulfonimide is prepared. The pigment can be used in textile printing and the like.

3,574,230

POLYHALOPOLYHYDROPOLYCYCLICDICARBOXYLIC ACID IMIDES

Henry A. Cyba, Evanston, Ill., assignor to Universal Oil Products Company, Des Plaines, Ill.
No Drawing. Filed Sept. 5, 1968, Ser. No. 757,764
Int. Cl. C07d 27/52

U.S. Cl. 260—326 10 Claims
Novel compositions of matter comprising haloaryl imides of polyhalopolyhydropolycyclicdicarboxylic acids as exemplified by α,α' -bis-[5,6,7,8,9,9-hexachloro-1,2,3,4,4a,5,8,8a-octahydro-5,8-methano-2,3-naphthalenedicarboximido]-2,3,5,6-tetrachloro-p-xylene are useful as additives for plastics, polymers, resins, etc. whereby flameproof or fire-retardant properties are added thereto.

3,574,231

N-SUBSTITUTED POLYHALOPOLYHYDROPOLYCYCLICDICARBOXIMIDES

Alexander Gaydasch, Chicago, Ill., assignor to Universal Oil Products Company, Des Plaines, Ill.
No Drawing. Filed Sept. 5, 1968, Ser. No. 767,546
Int. Cl. C07d 27/52

U.S. Cl. 260—326 10 Claims
Novel compositions of matter comprising N-substituted polyhalopolyhydropolycyclicdicarboximides in which the

substituent on the imide contains at least two nitrogen atoms as exemplified by N-guanyl-5,6,7,8,9,9-hexachloro-1,2,3,4,4a,5,8,8a-octahydro-5,8-methano-2,3-naphthalene-dicarboximide are useful as additives for plastics, polymers, resins, etc. whereby flameproof or fire-retardant properties are added thereto.

3,574,232

3-AMINOALKYL-1-PHENYL-INDOLINES
Antonio Cañas-Rodríguez and Peter R. Leeming, Canterbury, England, assignors to Pfizer Inc., New York, N.Y.

No Drawing. Continuation-in-part of application Ser. No. 706,672, Feb. 19, 1968. This application Apr. 4, 1968, Ser. No. 718,943

Claims priority, application Great Britain, Feb. 21, 1967, 8,172/67

Int. Cl. C07d 27/38, 27/40

U.S. Cl. 260—326.11 14 Claims
Novel 3-aminoalkyl-1-phenyl-indolines and 2-indolinones are disclosed.

The antidepressant properties of these compounds as well as certain other 2-indolinone analogs thereof are also disclosed.

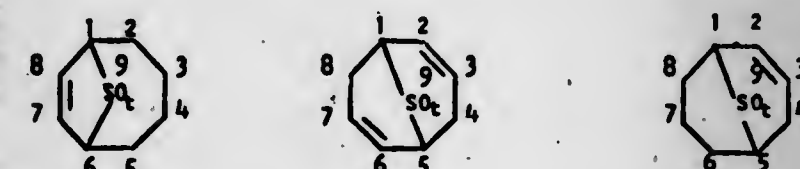
3,574,233

BICYCLIC SULFUR COMPOUNDS
Edward D. Weil, Yonkers, N.Y., assignor to Hooker Chemical Corporation, Niagara Falls, N.Y.

No Drawing. Continuation-in-part of application Ser. No. 482,287, Aug. 24, 1965. This application Apr. 1, 1968, Ser. No. 718,006

Int. Cl. A01n 9/12; C07d 63/10, 65/10

U.S. Cl. 260—327 12 Claims
Compounds selected from the group consisting of



wherein t is a number from 0 to 2. These compounds are pesticidal.

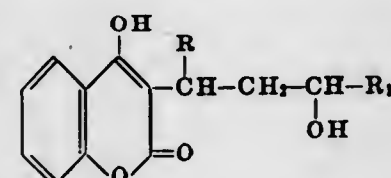
3,574,234

DERIVATIVES OF 4-HYDROXY COUMARINE
Eugene Boschetti, Venissieux, Darius Molho, Boulogne-sur-Seine, and Louis Fontaine, Lyon, France, assignors to L'ipha, Lyonnaise Industrielle Pharmaceutique

No Drawing. Filed Dec. 11, 1967, Ser. No. 689,347
Claims priority, application France, Dec. 13, 1966, 87,213; Nov. 13, 1967, 127,915

Int. Cl. A61k 27/00; C07d 63/12

U.S. Cl. 260—332.2 6 Claims
4-hydroxy coumarines represented by the formula



in which:

R is a member of the group formed by the thienyl, methyl-thienyl, halothieryl and nitrothienyl radicals; and

R₁ is a member of the group formed by the methyl, phenyl, halophenyl, nitrophenyl, diphenyl, halodiphenyl and nitrodiphenyl radicals, and processes for their preparation.

3,574,235

SEPARATION OF A MIXTURE OF DIASTEREOMERS OF ZEARALANOL

Vernon V. Young, Terre Haute, Ind., assignor to Commercial Solvents Corporation

No Drawing. Filed June 6, 1967, Ser. No. 643,819
Int. Cl. C07d 9/00

U.S. Cl. 260—343.2

8 Claims
A mixture of diastereoisomers is formed when zearalene is catalytically reduced to zearalanol in the presence

of hydrogen. A portion of the high melting diastereoisomer can be separated out by known means. The remaining mixture can be separated into its constituents by dissolving the mixture in warm glacial acetic acid, cooling the solution, and then diluting the solution with water. The low melting isomer (155°–157° C.) crystallizes out when the solution is cooled and the high melting isomer (180°–181° C.) crystallizes out when the solution is subsequently diluted.

DESIGNS

APRIL 6, 1971

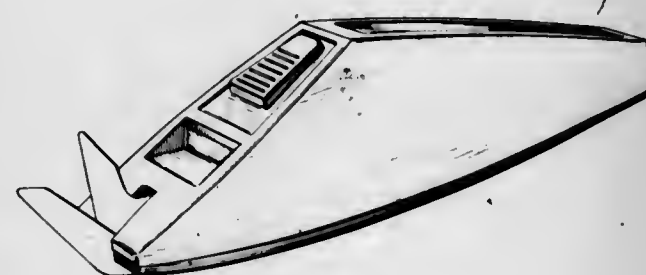
220,375
CHOCOLATE CONFECTION
Amilcare Dogliotti, Nelve, Cuneo, Italy
Filed Mar. 4, 1969, Ser. No. 16,017
Claims priority, application Italy Sept. 12, 1968
Term of patent 14 years
Int. Cl. D1-02

U.S. Cl. D1-12



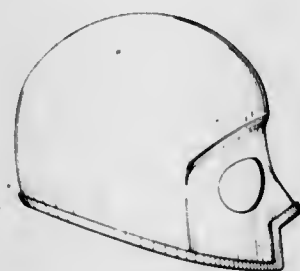
220,378
ELECTRIC SCISSORS
William Lovett Gamble, Unionville, Conn., assignor to
Scovill Manufacturing Company, Waterbury, Conn.
Filed Dec. 16, 1969, Ser. No. 20,521
Term of patent 14 years
Int. Cl. D8-02

U.S. Cl. D8-61



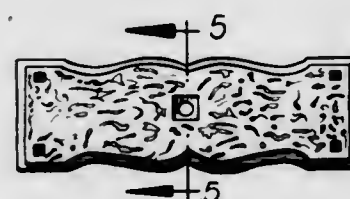
220,376
PROTECTIVE HEAD GEAR
Jake E. Brown, 517 18th Ave. N. 98122, and James B.
Sorenson, 1530 NE. 95th St. 98114, both of Seattle,
Wash.
Filed Aug. 27, 1969, Ser. No. 18,870
Term of patent 14 years
Int. Cl. D2-03

U.S. Cl. D2-232



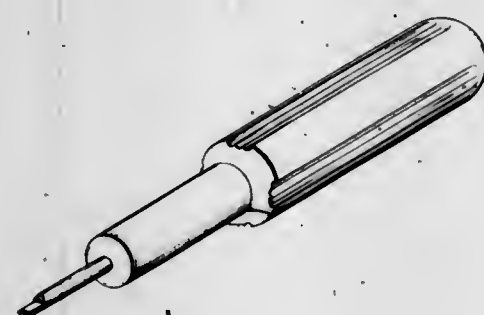
220,379
BACKPLATE OR THE LIKE
Bernie Bill Baker, Lawrence, Kans., assignor to Keystone
Consolidated Industries, Inc., Peoria, Ill.
Filed June 4, 1969, Ser. No. 17,516
Term of patent 14 years
The portion of the term of the patent subsequent to
Apr. 23, 1983, has been disclaimed
Int. Cl. D8-03

U.S. Cl. D8-179



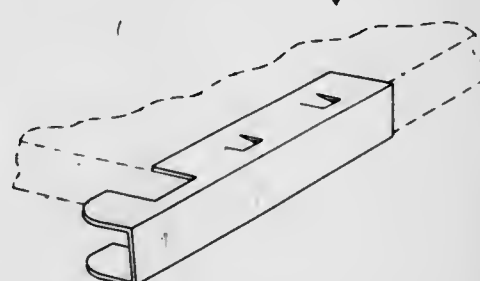
220,377
EXTRACTION TOOL
David Van Dike Benfer, Marysville, Pa., assignor to
AMP Incorporated, Harrisburg, Pa.
Filed Feb. 3, 1970, Ser. No. 21,300
Term of patent 3 1/2 years
Int. Cl. D8-02

U.S. Cl. D8-14



220,380
LENS PANEL HINGE PIN
Charles O. Hughes, St. Louis, and Thomas Akin, Clay-
ton, Mo., assignors to Emerson Electric Co., St. Louis,
Mo.
Filed July 8, 1969, Ser. No. 18,117
Term of patent 14 years
Int. Cl. D8-03

U.S. Cl. D8-259



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APRIL 6, 1971

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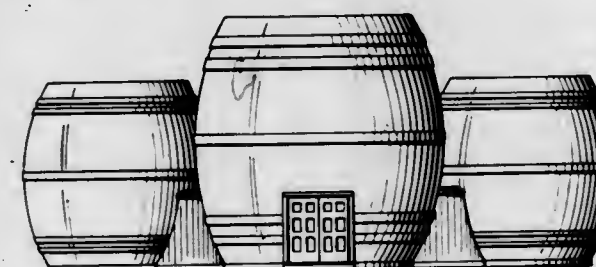
220,381
COVER FOR A TRAY FOR FOOD
Travis Starr Buxton, Luton Airport, London, England, assignor to Courtain Catering Limited, Luton Airport,
London, England
Filed May 19, 1969, Ser. No. 17,212
Claims priority, application Great Britain Nov. 18, 1968
Term of patent 14 years
Int. Cl. D9-02

U.S. Cl. D9-254



220,382
RESTAURANT
Howard Cooper, 400 E. Randolph St.,
Chicago, Ill. 60601
Filed Oct. 11, 1968, Ser. No. 13,952
Term of patent 14 years
Int. Cl. D25-04

U.S. Cl. D13-1



220,383
SERVICE BUILDING
Donald L. Nelson, Aqua Vista, Orinda, Calif. 94563,
and Lynn T. Evans, 2301 Larkin St., San Francisco,
Calif. 94109
Filed Nov. 19, 1969, Ser. No. 20,173
Term of patent 3 1/2 years
Int. Cl. D25-04

U.S. Cl. D13-1



220,384
SERVICE CANOPY
Donald L. Nelson, Aqua Vista, Orinda, Calif. 94563,
and Lynn T. Evans, 2301 Larkin St., San Francisco,
Calif. 94109
Filed Nov. 19, 1969, Ser. No. 20,174
Term of patent 3 1/2 years
Int. Cl. D25-04

U.S. Cl. D13-1



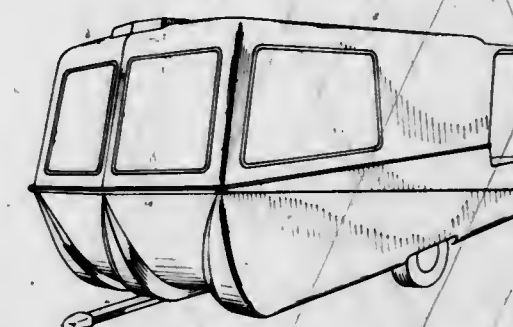
220,385
GARDEN CENTER BUILDING
Frank T. McCoy, Jr., Nashville, Tenn., assignor to Hardi-
Gardens, Inc., Nashville, Tenn.
Filed Dec. 9, 1969, Ser. No. 20,417
Term of patent 14 years
Int. Cl. D25-04

U.S. Cl. D13-1



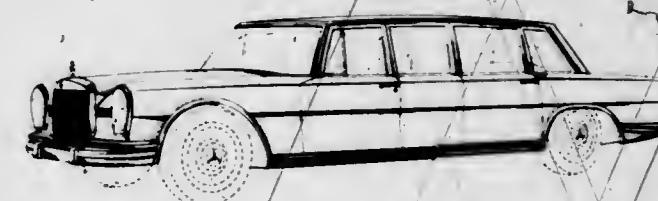
220,386
COMBINED TRAVEL TRAILER AND BOAT
Frank S. Kovach, South Bend, Ind., assignor to Buccaneer
Travel Trailer Corporation, Osceola, Ind.
Filed Dec. 24, 1969, Ser. No. 20,636
Term of patent 3 1/2 years
Int. Cl. D12-10

U.S. Cl. D14-3



220,387
AUTOMOBILE
Friedrich Geiger, Boblingen, and Carl Wilfert, Waldstadt,
Germany, assignors to Daimler-Benz Aktiengesellschaft,
Stuttgart-Unterturkheim, Germany
Filed Mar. 2, 1964, Ser. No. 78,842
Claims priority, application Germany Sept. 4, 1963
Term of patent 14 years
The portion of the term of the patent subsequent to
Dec. 7, 1979, has been disclaimed
Int. Cl. D12-08

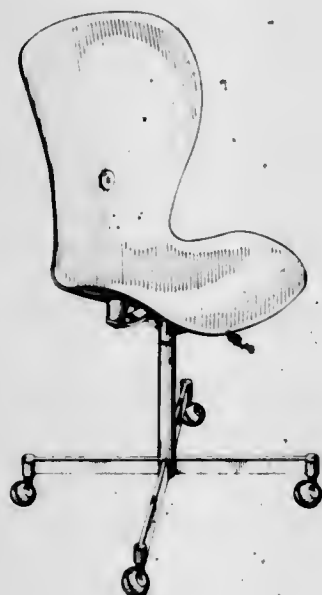
U.S. Cl. D14-3



220,388
CHAIR

Gideon A. Kramer, Seattle, Wash., assignor to American Desk Manufacturing Co., Temple, Tex.
Filed Mar. 17, 1969, Ser. No. 16,259
Term of patent 14 years
Int. Cl. D6—01

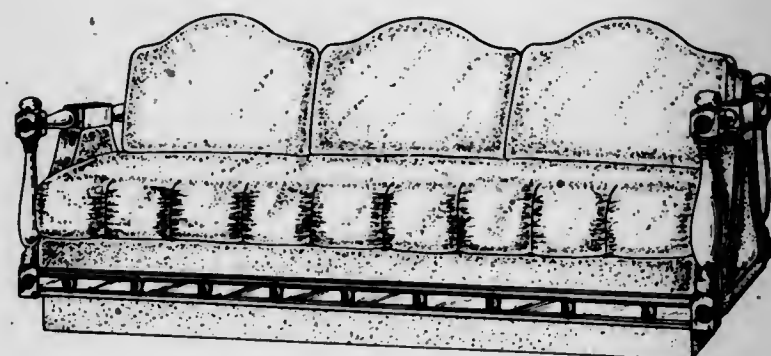
U.S. Cl. D15—1



220,390
SOFA

Hubert Howard Watson and Mike Stewart Watson, Galax, Va., assignors to Sawyers Furniture Company, Galax, Va.
Filed July 31, 1969, Ser. No. 18,481
Term of patent 14 years
Int. Cl. D6—01

U.S. Cl. D15—11



220,391

VITAMIN TABLET OR SIMILAR ARTICLE
Luther H. Kroninger, Jr., Huntington, N.Y., George W. Lehmann, Westfield, N.J., and Dean R. Straka, Evansville, Ind., assignors to Bristol-Myers Company, New York, N.Y.

Filed Apr. 17, 1970, Ser. No. 22,478
Term of patent 14 years
Int. Cl. D28—01; D1—02

U.S. Cl. D16—3



220,389

MULTIPLE SEATING UNIT
Gideon A. Kramer, Seattle, Wash., assignor to American Desk Manufacturing Co., Temple, Tex.
Filed Mar. 17, 1969, Ser. No. 16,296
Term of patent 14 years
Int. Cl. D6—01

U.S. Cl. D15—8



220,392

VITAMIN TABLET OR SIMILAR ARTICLE
Luther H. Kroninger, Jr., Huntington, N.Y., George W. Lehmann, Westfield, N.J., and Dean R. Straka, Evansville, Ind., assignors to Bristol-Myers Company, New York, N.Y.

Filed Apr. 17, 1970, Ser. No. 22,479
Term of patent 14 years
Int. Cl. D28—01; D1—02

U.S. Cl. D16—3

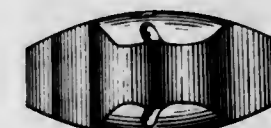


220,393

VITAMIN TABLET OR SIMILAR ARTICLE
Luther H. Kroninger, Jr., Huntington, N.Y., George W. Lehmann, Westfield, N.J., and Dean R. Straka, Evansville, Ind., assignors to Bristol-Myers Company, New York, N.Y.

Filed Apr. 17, 1970, Ser. No. 22,486
Term of patent 14 years
Int. Cl. D28—01; D1—02

U.S. Cl. D16—3

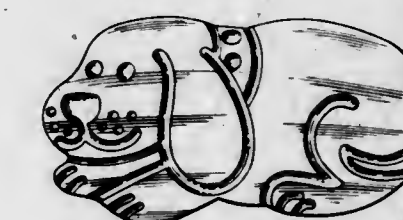


220,394

VITAMIN TABLET OR SIMILAR ARTICLE
Luther H. Kroninger, Jr., Huntington, N.Y., George W. Lehmann, Westfield, N.J., and Dean R. Straka, Evansville, Ind., assignors to Bristol-Myers Company, New York, N.Y.

Filed Apr. 21, 1970, Ser. No. 22,540
Term of patent 14 years
Int. Cl. D28—01; D1—02

U.S. Cl. D16—3



220,395

COMBINATION FISH RULER, SCALER, AND COMPASS

Patrick Garelli and St. Barth Alaska, both of 3812 S. Scoville Ave., Berwyn, Ill. 60402
Filed Dec. 3, 1969, Ser. No. 20,342

Term of patent 14 years
Int. Cl. D7—06; D10—08; D22—08; D8—02
U.S. Cl. D22—31

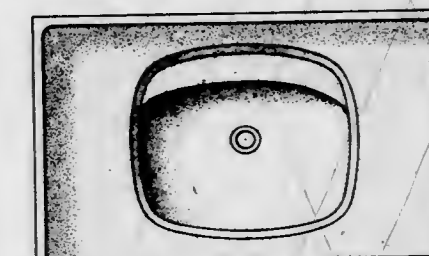


220,396

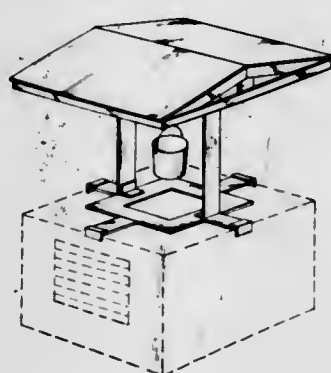
LAVATORY

Norman Van Skyhawk, Salt Lake City, Utah, assignor to American Standard Inc., New York, N.Y.
Filed Oct. 6, 1969, Ser. No. 19,437

Term of patent 14 years
Int. Cl. D23—02
U.S. Cl. D23—58



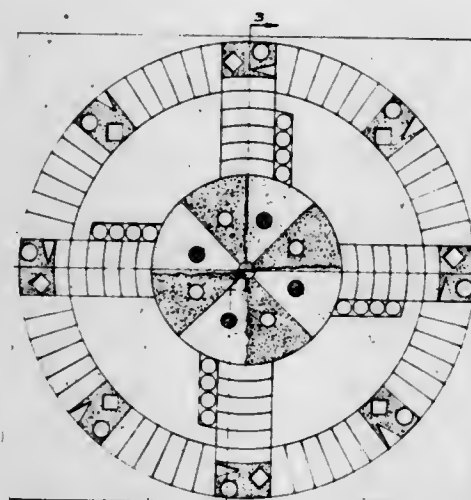
220,397
CANOPY FOR AIR CONDITIONING
CONDENSER UNIT
 William L. Melcher, 1102 Buoy Road,
 Houston, Tex. 77058
 Filed Sept. 30, 1969, Ser. No. 19,345
 Term of patent 14 years
 Int. Cl. D23-99; D25-99
 U.S. Cl. D23-167



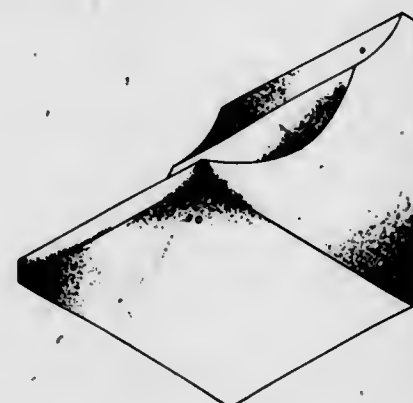
220,398
ORTHODONTIC DISPLAY MODEL
 Bernard Geltzer, 8200 Ponce de Leon Road,
 Miami, Fla. 33143
 Filed Nov. 12, 1969, Ser. No. 20,049
 Term of patent 3½ years
 Int. Cl. D24-99
 U.S. Cl. D24-1



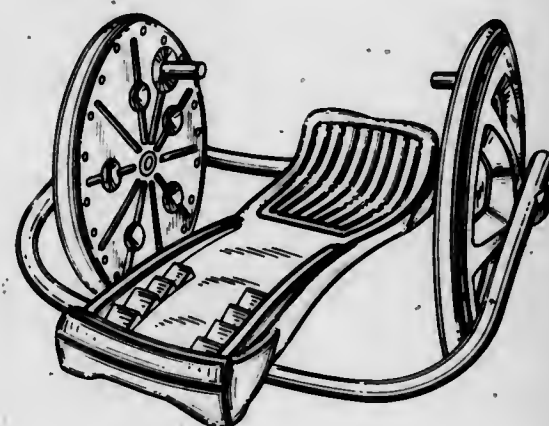
220,399
GAME BOARD
 Frank W. Collett, Box 943, Fort Pierce, Fla. 33450
 Filed Jan. 16, 1970, Ser. No. 20,959
 Term of patent 14 years
 Int. Cl. D21-02
 U.S. Cl. D34-5



220,400
BUILDING BLANK FOR FORMING TOY FIGURES
 Pansy E. Essman, 2207 Cunningham Ave.,
 San Jose, Calif. 95122
 Filed Apr. 14, 1969, Ser. No. 16,715
 Term of patent 14 years
 Int. Cl. D21-02
 U.S. Cl. D34-15



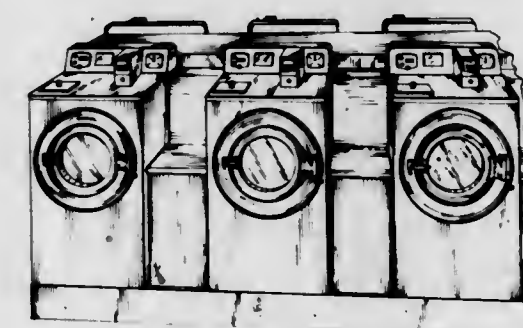
220,401
TOY VEHICLE
 Calvin S. Cook, Erie, Pa., assignor to Louis Marx & Co.
 Inc., New York, N.Y.
 Filed Feb. 16, 1970, Ser. No. 21,446
 Term of patent 14 years
 Int. Cl. D21-02
 U.S. Cl. D34-15



220,402
PITCHER
 Howard W. Phillips, Franklin, Tenn., assignor to Aladdin
 Industries, Incorporated, Chicago, Ill.
 Filed Jan. 28, 1970, Ser. No. 21,127
 Term of patent 14 years
 Int. Cl. D7-01
 U.S. Cl. D44-21



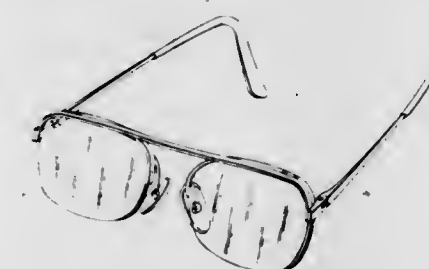
220,403
LAUNDRY WASHER UNIT
 Jack W. Tipps, 1919 Ave. Q,
 Lubbock County, Tex. 79405
 Filed May 5, 1969, Ser. No. 17,004
 Term of patent 14 years
 Int. Cl. D15-06
 U.S. Cl. D49-1



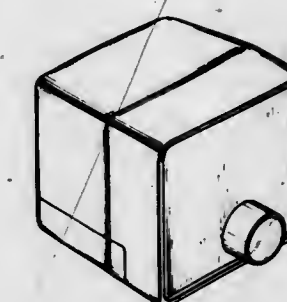
220,404
FORK OR SIMILAR ARTICLE
 Jens H. Quistgaard, Copenhagen, Denmark, assignor to
 Dansk Designs, Ltd., Mount Kisco, N.Y.
 Filed Jan. 26, 1970, Ser. No. 21,086
 Term of patent 14 years
 Int. Cl. D7-03
 U.S. Cl. D54-12



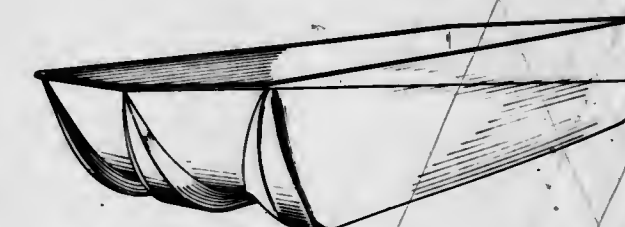
220,405
OPHTHALMIC SPECTACLES
 Luc Andre Marcel Tagnon, Paris, France, assignor to
 Societe des Lunetiers, Societe en Commandite Simple,
 Paris, France
 Filed Aug. 7, 1969, Ser. No. 18,580
 Claims priority, application France Feb. 28, 1969
 Term of patent 14 years
 Int. Cl. D16-08
 U.S. Cl. D57-1



220,406
SECURITY CAMERA
 George Hardy, Huntington, N.Y., assignor to Bell
 Security Systems, Inc., New York, N.Y.
 Filed Feb. 24, 1970, Ser. No. 21,594
 Term of patent 14 years
 Int. Cl. D16-01
 U.S. Cl. D61-1



220,407
BOAT HULL
 Frank S. Kovach, South Bend, Ind., assignor to Buccaneer
 Travel Trailer Corporation, Osceola, Ind.
 Filed Dec. 24, 1969, Ser. No. 20,637
 Term of patent 7 years
 Int. Cl. D12-06
 U.S. Cl. D71-1



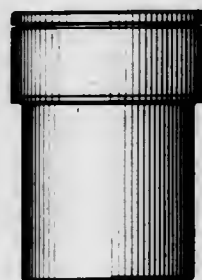
220,408
BARRICADE
 Robert H. Nygaard, 4701 Libra Place,
 Yorba Linda, Calif. 92686
 Filed Jan. 19, 1970, Ser. No. 20,987
 Term of patent 3½ years
 Int. Cl. D29-99
 U.S. Cl. D72-1



220,409

RECEPTACLE FOR MARKING PENS
James H. Lee and James R. Pauls, Walnut Creek, Calif., assignors to Dymo Industries, Inc., Emeryville, Calif.
Original design application May 7, 1968, Ser. No. 11,816, now Patent No. 2,178,338, dated June 16, 1970. Divided and this application Mar. 25, 1970, Ser. No. 22,043
Term of patent 14 years
Int. Cl. D19—02

U.S. Cl. D74—5



220,412

SHOE HANGER
Deborah E. Sussman, 11632 San Vicente Blvd., Los Angeles, Calif. 90049
Filed Aug. 4, 1969, Ser. No. 18,515
Term of patent 14 years
Int. Cl. D6—07

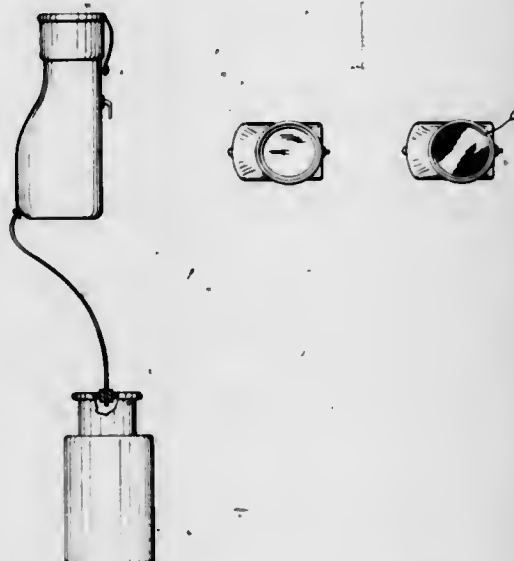
U.S. Cl. D80—8



220,413

URINATOR ASSEMBLY OR SIMILAR ARTICLE
Michael Pesce, 1034 Esplanade, Bronx, N.Y. 10461
Filed July 24, 1969, Ser. No. 18,381
Term of patent 14 years
Int. Cl. D24—01, 05

U.S. Cl. D83—1



220,410

MARKING PEN
James H. Lee and James R. Pauls, Walnut Creek, Calif., assignors to Dymo Industries, Inc., Emeryville, Calif.
Original design application May 7, 1968, Ser. No. 11,816, now Patent No. 2,178,338, dated June 16, 1970. Divided and this application Mar. 25, 1970, Ser. No. 22,044
Term of patent 14 years
Int. Cl. D19—06

U.S. Cl. D74—17



220,414

SOFT LUGGAGE
Leslie Marshall, 15 Pine St., Woodmere, N.Y. 11598
Filed Nov. 28, 1969, Ser. No. 20,316
Term of patent 14 years
Int. Cl. D3—01

U.S. Cl. D87—5



220,411

BALL POINT PEN OR THE LIKE
Robert Perlmutter, Flushing, N.Y., assignor to Duro Pen Company, Inc., Brooklyn, N.Y.
Filed Mar. 31, 1970, Ser. No. 22,146
Term of patent 14 years
Int. Cl. D19—06

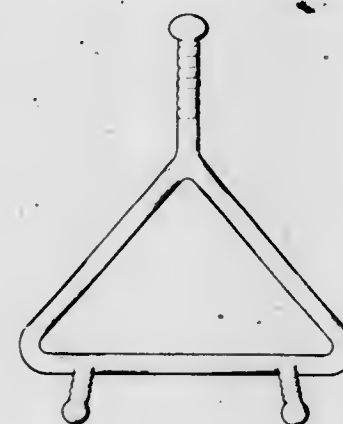
U.S. Cl. D74—17



220,415

TODDLERS WALKING AID
Nancy S. Gerth, 791 Brookview Drive, Greenwood, Ind. 46142
Filed Jan. 30, 1970, Ser. No. 21,156
Term of patent 3½ years
Int. Cl. D24—02

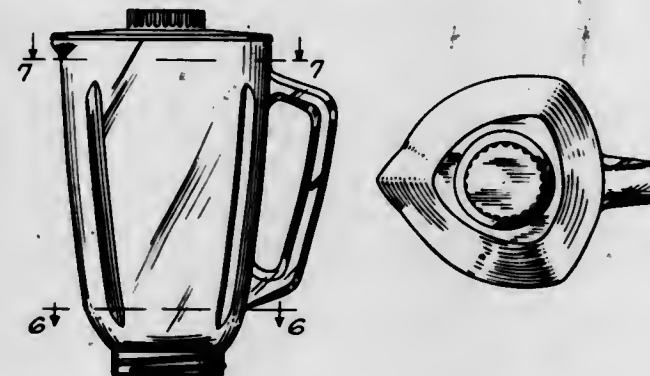
U.S. Cl. D88—5



220,416

BLENDER JAR
Clarence Lee Folden, Downers Grove, Ill., assignor to Sears, Roebuck and Co., Chicago, Ill.
Filed June 12, 1970, Ser. No. 23,447
Term of patent 14 years
Int. Cl. D7—05

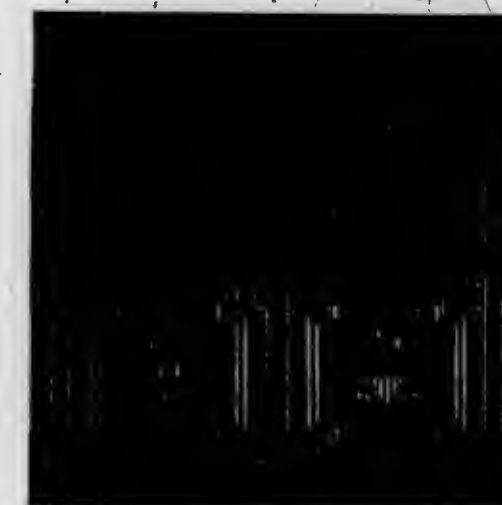
U.S. Cl. D89—1



220,419

SOLID SURFACE FLOOR COVERING OR SIMILAR ARTICLE
Robert R. Toth, Toms River, and Harry A. Shortway, Glen Rock, N.J., assignors to Congoleum Industries, Inc., Kearny, N.J.
Filed May 5, 1969, Ser. No. 18,424
Term of patent 14 years
Int. Cl. D6—04

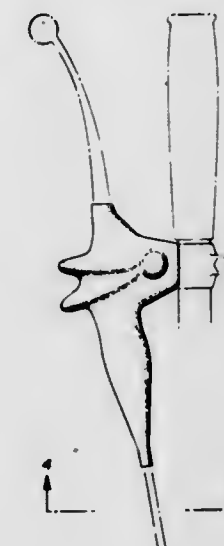
U.S. Cl. D92—4



220,417

MOTORCYCLE CONTROL LEVER DUST SHIELD
Victor Alan Boocock, 757 Harvard Ave., Menlo Park, Calif. 94025
Filed Jan. 12, 1970, Ser. No. 20,897
Term of patent 14 years
Int. Cl. D12—14

U.S. Cl. D90—1



LIST OF PATENTEEES

TO WHOM

PATENTS WERE ISSUED ON THE 6TH DAY OF APRIL, 1971

NOTE.—Arranged in accordance with the first significant character or word of the name (in accordance with city and telephone directory practice).

- AAI Corporation: See—
Randolph, Ellwood A.; and Baump, Paul A., 3,573,617.
- AB Tetra Pak: See—
Melle, Hans-George Wilhelm, 3,574,041.
- Abbott, Terence Arnold; Shephard, Basil R.; Kennedy, David Rankine; and Clachan, Margaret Loudon, to Bexford Limited. Preparation of synthetic film materials. 3,573,951, Cl. 117-7.
- Acushnet Process Company: See—
Sannes, Harold A., 3,573,872.
- Adams, Charles W.; Behrens, Herbert R.; and Pustilnik, Jerome M., to Institutional Networks Corporation. Instinet communication system for effectuating the sale or exchange of fungible properties between subscribers. 3,573,747, Cl. 340-172.5
- Adams, Phillip: See—
Cohen, Sidney; Gulakowski, Thaddeus A.; and Adams, Phillip, 3,573,971.
- Adams, Robert T., to Energy Conversion Devices, Inc. Memory matrix having serially connected threshold and memory switch devices at each cross-over point. 3,573,757, Cl. 340-173.
- Admiraal, Petrus Simon: See—
Doors, Bernardus Johannes; and Admiraal, Petrus Simon, 3,573,863.
- Aerojet-General Corporation: See—
Binnings, Gerald F.; Meyer, Theodore N.; and Riley, Mel J., 3,574,064.
- Penberg, Mortimer, 3,574,012.
- Aerospatiales Chatillon-Sous-Bagneux: See—
Gouillou, Roger L.; Ringenbach, Guy F.; and Delomini, Jacques H., 3,573,840.
- Agazzi, Alberto: See—
Galli de Paratesi, Sergio; Agazzi, Alberto; Broggi, Armando; and Ghiurghi, Luciano, 3,574,060.
- Agin, Gerald J., to International Business Machines Corporation. Single step stepping motor control. 3,573,592, Cl. 318-696.
- Ahn, Kie Y.; and Viggiano, Joseph M., to International Business Machines Corporation. Method and apparatus for inducing uniaxial anisotropy in magnetic film thereby, and memory using the film. 3,573,981, Cl. 117-240.
- Ahrens, Paul R., to RCA Corporation. Color killer and A. C. C. circuits. 3,573,354, Cl. 178-5.4
- Ahrons, Richard W., to RCA Corporation. Counter or shift register stage having both static and dynamic storage circuits. 3,573,498, Cl. 307-238.
- Aign, Volker: See—
Wolf, Karlheinz; Aign, Volker; Hornle, Reinhold; and Haus, Arthur, 3,573,946.
- Aircar Company: See—
Henderson, Harold R., 3,573,419.
- Ajoka, James S., to Hughes Aircraft Company. Broadband multimode horn antenna. 3,573,838, Cl. 343-783.
- Ajoka, James S.; and Du Hamel, Raymond H., to Hughes Aircraft Company. Broadband dielectric lens antenna fed by multi-conductor quasi-tem lines. 3,573,833, Cl. 343-753.
- Ajoka, James S.; and Du Hamel, Raymond H., to Hughes Aircraft Company. Antenna with conical transmission line feed. 3,573,836, Cl. 343-777.
- Akashi, Tsuneo: See—
Sugano, Izuru; Okuda, Taneaki; Akashi, Tsuneo; Kenmoku, Yoshihiro; and Tsuji, Toshiro, 3,574,116.
- Akers, Artie E., to North American Rockwell Corporation. Monitoring system. 3,573,817, Cl. 340-420.
- Akiba, Kosuke: See—
Tadama, Motomu; Akiba, Kosuke; Doi, Toshitada; Mikkaichi, Masashi; Mori, Tetsuya; and Sato, Risaburo, 3,573,830.
- Alberty, Joachim Ernst: See—
Honkanen, Erkki Juhani; Kosunen, Timo; Alberty, Joachim Ernst; and Hukki, Jaakko Juhani, 3,574,190.
- Albright, Roy H.: See—
Graybill, Howard W.; and Albright, Roy H., 3,573,341.
- Graybill, Howard W.; and Albright, Roy H., 3,573,342.
- Alkaline Batteries Limited: See—
Field, Braham Rowley, 3,573,994.
- Allen-Bradley Company: See—
DeSmidt, Woodrow A.; and Kuhn, Edward H., 3,573,343.
- Allis-Chalmers Manufacturing Company: See—
Boyd, Donald R., 3,573,577.
- Allmanna Svenska Elektriska Aktiebolaget: See—
Andersson, Jerker, 3,573,603.
- Forfod, Thorleif, 3,572,552.
- Sodergard, Bengt Martin, 3,574,059.
- Alpert, Nroman: See—
Berler, Robert M.; and Alpert, Nroman, 3,573,436.
- Alsop, Ranulph Michael; and Bremner, Ian, to Fisons Pharmaceuticals Limited. Process of preparing a ferric hydroxide-dextran complex. 3,574,184, Cl. 260-209.
- Amakasu, Tatsu; and Yamazaki, Takao, to Kaushuha-netsuren Kabushiki Kaisha. Method of preserving mechanical properties of steel wire during spot welding. 3,573,418, Cl. 219-58.
- American Cyanamid Company: See—
Coleman, Denis, 3,574,158.
- Fetter, Edward Joseph; and Andrew, Frederick Lyle, 3,574,159.
- Hsu, Nelson Nae-Ching, 3,574,160.
- Lewis, Armand Francis, 3,574,108.
- Madalo, Michale, 3,573,472.
- American Gage & Machine Company: See—
Vaher, John L., 3,573,609.
- American Home Products Corporation: See—
Bell, Stanley C., 3,574,216.
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- Vanderhelst, Peter W., to Robotron Corporation. Quotient circuit. 3,573,421, Cl. 219-110.
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- Von Feldt, John L., to Rochester Datronics, Inc. Light detector discriminator. 3,573,466, Cl. 250-206.
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- Vratny, Frederick, to Bell Telephone Laboratories, Incorporated. Resistive composition of matter and device utilizing same. 3,574,143, Cl. 252-320.
- Wache, Xavier, to Societe des Foyes et Ateliers du Creusot. Iron-nickel alloys having a high nickel content. 3,573,897, Cl. 75-123.
- Wadsted, Bengt, to Marden Anstalt. Fertilizer for cereals and process for its manufacture. 3,573,893, Cl. 71-41.
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- Wahlberg, Roger R., to Western Electric Company, Incorporated. Methods of forming seams in moisture barriers for cables. 3,574,016, Cl. 156-54.
- Wallace, John Gleason; and Lovendusky, Charles Michael, to AMP Incorporated. Card reader. 3,573,434, Cl. 235-61.11.

Walsh, Robert A.: See—
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Siebert, John M.; Genaler, Robert L.; Mizusawa, Kiyoshi; Ichishima, Eiji; and Yoshida, Fumihiko, 3,574,120.
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Yost, Richard G.; and Willison, Irving S., to Eastman Kodak Company. Method for preparing color elements providing mottle-free dye images, 3,573,916, Cl. 96-74.
Young, Vernon V., to Commercial Solvents Corporation. Separation of a mixture of diastereoisomers of zeaxanol, 3,574,235, Cl. 260-343.2.
Yourke, Hannon S.: See—
Lake, Joseph A., Jr.; and Yourke, Hannon S., 3,573,496.
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Zarouni, Alfred: See—
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Zeitlin, Richard A., to Autoelectron Corporation. Automatic registration system, 3,573,739, Cl. 340-172.5.
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Zergenyi, Janos; and Habicht, Ernst, to Geigy Chemical Corporation. 3-Tertiaryamino propionyl- benzo furan-2-carboxylic acid, 3,574,208, Cl. 260-247.2.
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Silver, Arnold H.; and Zimmerman, James E., 3,573,759.
Zocholl, Stanley E., to I-T-E Imperial Corporation. Operation indicator circuit for static overcurrent relays, 3,573,556, Cl. 317-33.
Zonis, Jerome; and Eu Daly, Everett R., to Energy Electronics. Gas discharge lamp circuit employing a transistorized oscillator, 3,573,544, Cl. 315-206.
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LIST OF REISSUE PATENTEEES

TO WHOM

PATENTS WERE ISSUED ON THE 6TH DAY OF APRIL, 1971

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Eaves, Robert B., to Photo Motion Corp. Photographic Method. Re. 27,112, 4-6-71, Cl. 96—27.
Fister, Louis P.: See—
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Sarka, Albert J., to Harris-Intertype Corp. Sheet material forming apparatus. Re. 27,113, 4-6-71, Cl. 93—58.2.
Scheublein, William A., Jr., and L. P. Fister, to Moog Industries, Inc. Self-adjusting movable joint device. Re. 27,114, 4-6-71, Cl. 287—93.

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Dickson, Patrick, to Jackson & Perkins Co. Rose plant, 3,037, 4-6-71, Cl. 20.
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Aladdin Industries, Inc.: See—
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Alaska, St. Barth: See—
Garelli, Patrick, and Alaska, 220,395.
American Desk Manufacturing Co.: See—
Kramer, Gideon A., 220,388.
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Bell Security Systems, Inc.: See—
Hardy, George, 220,406.
Benfer, David Van Dike, to AMP Inc. Extraction tool, 220,377, 4-6-71, Cl. D8—14.
Boocock, Victor A. Motorcycle control lever dust shield, 220,417, 4-6-71, Cl. D90—1.
Bristol-Myers Co.: See—
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Brown, Jake E., and J. B. Sorenson, Protective head gear, 220,376, 4-6-71, Cl. D2—232.
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Collett, Frank W. Game board, 220,399, 4-6-71, Cl. D34—5.
Congoleum Industries, Inc.: See—
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Toth, Robert R., and Shortway, 220,419.
Cook, Calvin S., to Louis Marx & Co. Inc. Toy Vehicle, 220,401, 4-6-71, Cl. D34—15.
Cooper, Howard, Restaurant, 220,382, 4-6-71, Cl. D13—1.
Courtair Catering Ltd.: See—
Buxton, Travis S., 220,381.
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Daimler-Benz Aktiengesellschaft: See—
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Dansk Designs, Ltd.: See—
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Dogliotti, Amilcare, Chocolate, confection, 220,375, 4-6-71, Cl. D1—12.
Duro Pen Co., Inc.: See—
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Lee, James H., and Pauls, 220,410.
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Evans, Lynn T.: See—
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Gamble, William L., to Scovill Mfg. Co. Electric scissors, 220,378, 4-6-71, Cl. D8—61.
Garelli, Patrick, and St. B. Alaska, Combination fish ruler, sealer, and compass, 220,393, 4-6-71, Cl. D22—31.

Gelger, Friedrich, and W. Carl, to Daimler-Benz Aktiengesellschaft, Automobile, 220,387, 4-6-71, Cl. D14—3.
Geltzer, Bernard, Orthodontic display model, 220,398, 4-6-71, Cl. D24—1.
Gerth, Nancy S. Toddlers' walking aid, 220,415, 4-6-71, Cl. D88—5.
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Kramer, Gideon A., to American Desk Mfg. Co. Chair, 220,388, 4-6-71, Cl. D15—1.
Kramer, Gideon A., to American Desk Mfg. Co. Multiple seating unit, 220,389, 4-6-71, Cl. D15—8.
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Kroninger, Luther H., Jr., G. W. Lehmann, and D. R. Straka, to Bristol-Myers Co. Vitamin tablet or similar article, 220,392, 4-6-71, Cl. D16—3.
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Lee, James H., and J. R. Pauls, to Dymo Industries, Inc. Receiptacle for marking pens, 220,409, 4-6-71, Cl. D74—5.
Lee, James H., and J. R. Pauls, to Dymo Industries, Inc. Marking pen, 220,410, 4-6-71, Cl. D74—17.
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PATENTS

1 : 3,573,557	6 : 3,573,640	8 : 3,573,764	17 : 3,573,367	18 : 3,573,344	24 : 3,574,140
3,573,583	3,573,653	3,573,982	3,573,382	3,573,351	3,574,175
3,573,823	3,573,654	3,574,115	3,573,389	3,573,354	3,574,407
4 : 3,573,345	3,573,664	3,573,386	3,573,405	3,573,365	3,574,449
3,573,432	3,573,671	3,573,425	3,573,408	3,573,413	3,574,467
3,573,442	3,573,674	3,573,436	3,573,414	3,573,414	3,574,477
3,573,489	3,573,678	3,573,443	3,573,444	3,573,480	3,574,503
3,573,579	3,573,701	3,573,657	3,573,497	3,573,481	3,574,520
3,573,597	3,573,731	3,573,677	3,573,510	3,573,483	3,574,537
3,573,610	3,573,737	3,573,714	3,573,514	3,573,492	3,574,540
3,573,756	3,573,738	3,573,732	3,573,517	3,573,515	3,574,547
3,573,763	3,573,761	3,573,781	3,573,538	3,573,604	3,574,636
3,573,821	3,573,755	3,573,811	3,573,545	3,573,631	3,574,667
3,573,768	3,573,768	3,573,902	3,573,559	3,573,642	3,574,675
3,573,770	3,573,903	3,573,903	3,573,560	3,573,775	3,574,680
3,573,782	3,573,782	3,573,938	3,573,561	3,573,925	3,574,696
3,573,787	3,573,787	3,573,984	3,573,586	3,573,966	3,574,699
3,573,797	3,573,797	3,574,001	3,573,594	3,574,015	3,574,703
3,573,800	3,573,800	3,574,004	3,573,600	3,574,021	3,574,729
3,573,814	3,573,814	3,574,029	3,573,609	3,574,147	3,574,746
3,573,828	3,573,828	3,574,074	3,573,619	3,574,169	3,574,774
3,573,833	3,573,833	3,574,081	3,573,628	3,574,235	3,574,777
3,573,835	3,573,835	3,574,108	3,573,643	3,574,235	3,574,777
3,573,836	3,573,836	3,574,158	3,573,673	3,574,734	3,574,778
3,573,837	3,573,837	3,574,159	3,573,682	3,574,779	3,574,778
3,573,842	3,573,842	3,574,160	3,573,684	3,574,782	3,574,782
3,573,844	3,573,844	3,574,163	3,573,686	3,574,784	3,574,784
3,573,845	3,573,845	3,574,189	3,573,698	3,574,787	3,574,787
3,573,846	3,573,846	3,574,203	3,573,733	3,574,789	3,574,789
3,573,847	3,573,847	3,574,212	3,573,783	3,574,790	3,574,790
3,573,848	3,573,848	3,574,223	3,573,783	3,574,791	3,574,791
3,573,849	3,573,849	3,574,226	3,573,886	3,574,792	3,574,792
3,573,850	3,573,850	3,574,226	3,573,886	3,574,793	3,574,793
3,573,851	3,573,851	3,574,226	3,573,886	3,574,794	3,574,794
3,573,852	3,573,852	3,574,226	3,573,886	3,574,795	3,574,795
3,573,853	3,573,853	3,574,226	3,573,886	3,574,796	3,574,796
3,573,854	3,573,854	3,574,226	3,573,886	3,574,797	3,574,797
3,573,855	3,573,855	3,574,226	3,573,886	3,574,798	3,574,798
3,573,856	3,573,856	3,574,226	3,573,886	3,574,799	3,574,799
3,573,857	3,573,857	3,574,226	3,573,886	3,574,800	

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26 : 3,573,722	34 : 3,573,439	34 : 3,574,111	36 : 3,573,890	39 : 3,573,870	42 : 3,574,040
3,573,759	3,573,446	3,574,114	3,573,901	3,573,888	3,574,045
3,573,831	3,573,465	3,574,122	3,573,904	3,573,889	3,574,069
3,573,839	3,573,469	3,574,143	3,573,906	3,573,911	3,574,076
3,573,861	3,573,472	3,574,153	3,573,914	3,573,929	3,574,129
3,573,885	3,573,473	3,574,170	3,573,915	3,573,945	3,574,130
3,573,997	3,573,488	3,574,171	3,573,916	3,573,977	3,574,131
3,574,068	3,573,496	3,574,207	3,573,919	3,573,986	3,574,154
3,574,104	3,573,498	3,574,229	3,573,920	3,574,023	3,574,196
3,574,112	3,573,499	3,573,350	3,573,921	3,574,057	3,574,216
3,574,118	3,573,508	3,573,355	3,573,935	3,574,082	3,574,220
3,574,155	3,573,555	3,573,356	3,573,937	3,574,101	3,573,567
3,574,182	3,573,581	3,573,357	3,573,939	3,574,113	3,573,591
3,574,186	3,573,598	3,573,372	3,573,950	3,574,120	3,573,961
3,574,187	3,573,601	3,573,385	3,573,973	3,574,123	3,574,073
3,574,205	3,573,605	3,573,396	3,573,974	3,574,124	3,573,349
27 : 3,573,447	3,573,622	3,573,428	3,573,975	3,574,126	3,573,395
3,573,466	3,573,627	3,573,433	3,573,981	3,574,127	3,573,490
3,573,542	3,573,630	3,573,441	3,573,983	3,574,128	3,573,509
3,573,562	3,573,651	3,573,448	3,573,988	3,574,133	3,573,726
3,573,599	3,573,656	3,573,455	3,573,992	3,574,149	3,573,754
3,573,608	3,573,658	3,573,456	3,574,002	3,574,150	3,573,819
3,573,621	3,573,661	3,573,460	3,574,005	3,574,165	3,573,851
3,573,641	3,573,662	3,573,478	3,574,017	3,574,174	3,573,852
3,573,713	3,573,666	3,573,491	3,574,030	3,573,543	3,573,853
3,573,730	3,573,681	3,573,495	3,574,036	3,574,099	3,573,854
3,573,743	3,573,708	3,573,501	3,574,037	3,573,639	3,573,855
3,573,762	3,573,727	3,573,505	3,574,051	3,573,652	3,573,856
3,573,777	3,573,742	3,573,516	3,574,100	3,573,813	3,573,866
3,573,807	3,573,744	3,573,521	3,574,102	Re. 27, 112	3,573,867
3,573,952	3,573,745	3,573,526	3,574,137	3,573,341	3,573,871
3,573,980	3,573,757	3,573,539	3,574,172	3,573,342	3,573,887
3,574,013	3,573,761	3,573,571	3,574,173	3,573,374	3,573,923
3,574,042	3,573,765	3,573,573	3,574,233	3,573,376	3,574,010
3,574,048	3,573,773	3,573,575	3,573,420	3,573,406	3,574,039
3,574,078	3,573,785	3,573,592	3,573,452	3,573,409	3,574,083
29 : Re. 27, 114	3,573,786	3,573,595	3,573,549	3,573,417	3,574,132
3,573,429	3,573,789	3,573,606	3,573,749	3,573,424	49 : 3,573,375
3,573,450	3,573,798	3,573,616	3,573,771	3,573,434	3,573,618
3,573,451	3,573,801	3,573,626	3,573,858	3,573,440	50 : 3,573,500
3,573,862	3,573,820	3,573,629	3,573,960	3,573,494	3,573,989
3,574,053	3,573,827	3,573,634	39 : Re. 27, 113	3,573,531	51 : 3,573,366
3,574,080	3,573,829	3,573,635	3,573,339	3,573,556	3,573,694
3,574,088	3,573,832	3,573,648	3,573,346	3,573,570	3,573,748
32 : 3,573,403	3,573,845	3,573,659	3,573,388	3,573,665	3,573,791
33 : 3,573,427	3,573,849	3,573,670	3,573,392	3,573,669	3,573,797
3,573,532	3,573,875	3,573,693	3,573,398	3,573,702	3,573,805
3,573,553	3,573,891	3,573,728	3,573,402	3,573,707	3,573,987
3,573,692	3,573,908	3,573,736	3,573,410	3,573,711	3,574,084
3,573,816	3,573,928	3,573,739	3,573,419	3,573,716	3,574,134
3,573,958	3,573,944	3,573,741	3,573,423	3,573,717	53 : 3,573,649
3,574,019	3,573,967	3,573,751	3,573,471	3,573,718	54 : 3,573,940
34 : 3,573,338	3,573,968	3,573,753	3,573,474	3,573,719	3,574,168
3,573,362	3,573,970	3,573,758	3,573,512	3,573,720	3,574,213
3,573,371	3,573,971	3,573,760	3,573,534	3,573,779	55 : 3,573,343
3,573,377	3,574,011	3,573,767	3,573,568	3,573,784	3,573,457
3,573,380	3,574,016	3,573,769	3,573,590	3,573,860	3,573,486
3,573,381	3,574,044	3,573,788	3,573,663	3,573,873	3,573,577
3,573,384	3,574,050	3,573,794	3,573,685	3,573,899	3,573,930
3,573,399	3,574,065	3,573,808	3,573,688	3,573,900	3,573,931
3,573,400	3,574,071	3,573,818	3,573,690	3,573,948	3,573,932
3,573,404	3,574,087	3,573,826	3,573,700	3,573,949	3,574,031
3,573,415	3,574,098	3,573,841	3,573,725	3,573,993	3,574,135
3,573,438	3,574,105	3,573,850	3,573,850		

Design Patents

6 : 220,383	6 : 220,417	17 : 220,416	29 : 220,380	36 : 220,413	48 : 220,403
220,384	9 : 220,378	18 : 220,386	34 : 220,418	42 : 220,414	49 : 220,396
220,400	12 : 220,398	220,391	220,419	47 : 220,377	51 : 220,390
220,408	220,399	220,393	36 : 220,392	48 : 220,401	53 : 220,376
220,409	17 : 220,382	220,407	220,394	47 : 220,385	220,388
220,410	220,395	220,415	220,406	48 : 220,397	220,389
220,412	220,402	220,379	220,411		

Plant Patents

6 : 3,039					
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U. S. GOVERNMENT PRINTING OFFICE: O-1371

OFFICIAL GAZETTE of the UNITED STATES PATENT OFFICE

April 13, 1971

Volume 885

Number 2

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PATENT OFFICE NOTICES

Certificates of Correction for the Week of Apr. 13, 1971

D. 219,720	3,535,277	3,542,830	3,547,912
2,806,843	3,535,353	3,542,676	3,548,240
3,342,039	3,535,445	3,542,763	3,548,909
3,403,192	3,535,502	3,542,820	3,549,400
3,453,381	3,535,522	3,543,506	3,549,762
3,460,263	3,536,154	3,543,554	3,551,520
3,482,771	3,536,742	3,543,614	3,551,565
3,488,363	3,536,878	3,543,725	3,551,609
3,496,172	3,537,263	3,543,764	3,552,145
3,498,967	3,537,564	3,543,876	3,552,368
3,506,714	3,538,234	3,543,926	3,553,458
3,516,146	3,538,548	3,543,931	3,553,528
3,519,200	3,538,688	3,543,932	3,553,550
3,520,998	3,539,582	3,544,403	3,553,683
3,521,552	3,539,954	3,544,496	3,554,204
3,522,416	3,540,435	3,544,979	3,554,292
3,524,077	3,540,572	3,545,163	3,554,468
3,524,360	3,540,649	3,545,334	3,554,555
3,524,676	3,541,059	3,545,463	3,554,752
3,528,083	3,541,081	3,545,752	3,555,206
3,530,136	3,541,093	3,546,214	3,556,866
3,531,573	3,541,592	3,546,333	3,556,879
3,531,854	3,541,688	3,546,351	3,557,123
3,533,320	3,541,972	3,546,352	3,557,219
3,534,127	3,542,256	3,546,654	3,557,508
3,534,887	3,542,274	3,547,132	
3,535,054	3,542,357	3,547,151	

Classification Order No. 403

Classification Order No. 403, dated Mar. 18, 1971, incorporates changes in the following classes:

- 10, BOLT, NAIL, NUT, RIVET AND SCREW MAKING
- 30, CUTLERY
- 51, ABRADING
- 56, HARVESTERS
- 77, BORING AND DRILLING—Abolished
- 79, BUTTON MAKING
- 82, TURNING
- 98, VENTILATION
- 144, WOODWORKING
- 145, WOODWORKING TOOLS
- 184, LUBRICATION
- 211, SUPPORTS, RACKS
- 296, LAND VEHICLES, BODIES AND TOPS
- 318, ELECTRICITY, MOTIVE POWER SYSTEMS
- 408, CUTTING BY USE OF ROTATING AXIALLY MOVING TOOL—Established

All changes will be incorporated in the Manual of Classification replacement pages dated April 1971.

WALTER W. BURNS, JR.,
Administrator, Office of Search
Systems and Documentation.

Service by Publication

Werner E. Beler

In accordance with Rule 47 of the Rules of Practice of the United States Patent Office in Patent Cases, notice is hereby given of the filing on June 20, 1968, of an application for patent entitled "Spinnerette for Extruding T-Shaped Filaments," on behalf of Werner E. Beler, whose last known address is Sardis View Lane, Matthews, North Carolina. The application was made in compliance with Rule 47(a) and 35 U.S.C. 116 by joint inventor Paul Pallyenko without execution by the said Werner E. Beler. Notice of the filing directed to the above noted address has been returned undelivered. Any action to be taken by the said Werner E. Beler in

connection with the said application must be taken within thirty days of the publication of this notice.

F. H. BRONAUGH,
Deputy Assistant Commissioner of Patents.

Patents Available for Licensing or Sale

- D. 218,253. FISH BOWL. Wade H. Wolfe, 5211 Arbardee Lane, Fair Oaks, Calif., 95628.
- 3,348,043. FLUORESCENT DISPLAY SIGN COMPOSED OF ROTATABLE TRIANGULAR PRISMS. Orion M. Mehus, 210 W. 103rd St., New York, N.Y., 10025.
- 3,514,579. ELECTRIC SYRUP WARMER. Fred E. Sanders, 503 E. 108th St., Cleveland, Ohio, 44108.
- 3,524,287. BUILDING STRUCTURE. Mario Toselli, 2, Rue de la Republique 84, Avignon, France.
- 3,535,667. ELECTRICAL SAFETY DEVICE. Henry C. Harnish, Jr., and Anthony J. Osello, Elcock Ave., Boonton, N.J., 07005.
- 3,536,223. MOLDED PLASTIC CONTAINER. Mauser KG, Cologne, Germany. Correspondence to: Michael S. Striker, 380 Lexington Ave., New York, N.Y., 10017.
- 3,545,413. INTERNAL COMBUSTION ROTARY ENGINE. E. M. Shelby, 1548 Old Bayshore Road, San Jose, Calif., 95112.
- 3,546,945. FLUID SAMPLER. William H. Collins, 1002 Chipley St., Baker, La., 70714.
- 3,559,756. WRONG WAY TRAFFIC CONTROL SYSTEM. Noel M. Torres, P.O. Box 10731, San Diego, Calif., 92139.
- 3,567,336. PROPELLERS. Sz. Bartha, Kew Gardens, N.Y. Correspondence to: Alexander Reti, 345 E. 57th St., New York, N.Y., 10022.
- 3,568,902. DEVICE FOR CARRYING AND SECURING SKI EQUIPMENT. Samuel M. Highbarger, 5543 Westwood Lane, Birmingham, Mich., 48010.
- 3,570,368. DUPLICATING APPARATUS. Edward C. Clark. Correspondence to: Marechal, Biebel, French & Bugg, Winters Bank Bldg., Dayton, Ohio, 45402.

The following 2 patents are offered by: Joseph Sallah, Rte. 1, Box 85, Dyer, Ind., 46311.
D. 219,784. PLASTIC EDUCATIONAL TOY.
D. 219,785. PLASTIC EDUCATIONAL TOY.

The following 3 patents are offered by: John W. Barnd, 32 Gollybrook Road, Paramus, N.J.
3,351,128. MULTI-ZONE TEMPERATURE CONTROL.
3,496,991. FLUID TEMPERATURE REGULATING METHOD AND APPARATUS.
3,515,345. MULTI-ZONE TEMPERATURE CONTROL.

General Motors Corporation is prepared to grant nonexclusive licenses under the following 2 patents upon reasonable terms.
Application for license may be addressed to Director, Patent Section, General Motors Building, 3044 W. Grand Blvd., Detroit, Mich., 48202.
3,421,996. METERING TUBE.
3,425,296. POWER TRAIN.

General Electric Company is prepared to grant non-exclusive licenses under the following 7 patents upon reasonable terms to domestic manufacturers.
Applications for license under the following patent may be addressed to: General Electric Company, Patent Counsel, Housewares Division, 1285 Boston Ave., Bridgeport, Conn., 06602.
3,489,937. MOTOR CONSTRUCTION.
Applications for license under the following patent may be addressed to: Patent Counsel Industry Components & Metallurgical, General Electric Company, 15160 W. Eight Mile Road, Oak Park, Mich., 48237.

APRIL 13, 1971

U. S. PATENT OFFICE

219

3,509,597. DIAMOND HIGH PRESSURE CELL.

3,478,280. PULSE WIDTH MODULATED LASER.

Applications for license under the following 5 patents may be addressed to: Division Patent Counsel, Space Division, General Electric Company, P.O. Box 8555, Philadelphia, Pa., 19101.

3,536,924. TRACKING DEVICE FOR MOVING WAVE ENERGY SOURCE TO OPTICAL DETECTORS UTILIZED TO DETERMINE RANGE AND VECTOR VELOCITY OF A MOVING WAVE ENERGY SOURCE.

3,549,436. LAYERED PROPELLANT COMPOSITION CONSISTING OF AN ELECTRICAL CONDUCTOR AND INSULATOR.

3,537,877. LOW TEMPERATURE METHOD FOR PRODUCING AMORPHOUS BORON-CARBON DEPOSITS.

3,551,708. HEAT SHIELDED THERMIONIC CONVERTER.

PATENT EXAMINING CORPS

R. A. WAHL, Assistant Commissioner
F. H. BRONAUGH, Deputy Assistant Commissioner

CONDITION OF PATENT APPLICATIONS AS OF MARCH 23, 1971

PATENT EXAMINING GROUPS	Actual Filing Date of Oldest New Case Awaiting Action
CHEMICAL EXAMINING GROUPS	
GENERAL CHEMISTRY AND PETROLEUM CHEMISTRY, GROUP 110—M. STERMAN, Director.....	10-13-69
Inorganic Compounds; Inorganic Compositions; Organo-Metal and Organo-Metalloid Chemistry; Metallurgy; Metal Stock; Electro Chemistry; Batteries; Hydrocarbons; Mineral Oil Technology; Lubricating Compositions; Gaseous Compositions; Fuel and Igniting Devices.	
GENERAL ORGANIC CHEMISTRY, GROUP 120—I. MARCUS, Director.....	4-30-69
Heterocyclic; Amides; Alkaloids; Azo; Sulfur; Misc. Esters; Carbohydrates; Herbicides; Poisons; Medicines; Cosmetics; Steroids; Oxo and Oxy; Quinones; Acids; Carboxylic Acid Esters; Acid Anhydrides; Acid Halides.	
HIGH POLYMER CHEMISTRY, PLASTICS AND MOLDING, GROUP 140—L. J. BERCOVITZ, Director.....	1-08-70
Synthetic Resins; Rubber; Proteins; Macromolecular Carbohydrates; Mixed Synthetic Resin Compositions; Synthetic Resins With Natural Polymers and Resins; Natural Resins; Reclaiming; Pore-Forming; Compositions (Part) e.g.: Coating; Molding; Ink; Adhesive and Abrading Compositions; Molding, Shaping, and Treating Processes.	
COATING AND LAMINATING, BLEACHING, DYEING AND PHOTOGRAPHY, GROUP 160—A. P. KENT, Director.....	12-02-69
Coating; Processes and Misc. Products; Laminating Methods and Apparatus; Stock Materials; Adhesive Bonding; Special Chemical Manufactures; Special Utility Compositions; Bleaching; Dyeing and Photography.	
SPECIALIZED CHEMICAL INDUSTRIES AND CHEMICAL ENGINEERING, GROUP 170—W. B. KNIGHT, Director.....	7-22-69
Fertilizers; Foods; Fermentation; Analytical Chemistry; Reactors; Sugar and Starch; Paper Making; Glass Manufacture; Gas; Heating and Illuminating; Cleaning Processes; Liquid Purification; Distillation; Preserving; Liquid and Solid Separation; Gas and Liquid Contact Apparatus; Refrigeration; Concentrative Evaporators; Mineral Oils Apparatus; Misc. Physical Processes.	
ELECTRICAL EXAMINING GROUPS	
INDUSTRIAL ELECTRONICS AND RELATED ELEMENTS, GROUP 210—N. ANSHER, Director.....	6-18-70
Generation and Utilization; General Applications; Conversion and Distribution; Heating and Related Art Conductors; Switches; Miscellaneous.	
SECURITY, GROUP 220—R. L. CAMPBELL, Director.....	7-09-69
Ordinance, Firearms and Ammunition; Radar, Underwater Signaling, Directional Radio, Torpedoes, Seismic Exploring, Radio-Active Batteries; Nuclear Reactors, Powder Metallurgy, Rocket Fuels; Radio-Active Material.	
INFORMATION TRANSMISSION, STORAGE AND RETRIEVAL, GROUP 230—J. F. COUCH, Director.....	1-02-70
Communications; Multiplexing Techniques; Facsimile; Data Processing, Computation and Conversion; Storage Devices and Related Arts.	
ELECTRONIC COMPONENT SYSTEMS AND DEVICES, GROUP 250—W. L. CARLSON, Director.....	2-06-70
Semi-Conductor and Space Discharge Systems and Devices; Electronic Component Circuits; Wave Transmission Lines and Networks; Optics; Radiant Energy; Measuring.	
PHYSICS, GROUP 260—R. L. EVANS, Director.....	12-23-70
Photography; Sound and Lighting; Indicators and Optics; Measuring and Testing; Geometrical Instruments.	
DESIGNS, GROUP 280—R. L. CAMPBELL, Director.....	5-21-70
Industrial Arts; Household, Personal and Fine Arts.	
MECHANICAL EXAMINING GROUPS	
HANDLING AND TRANSPORTING MEDIA, GROUP 310—A. BERLIN, Director.....	12-22-69
Conveyors; Hoists; Elevators; Article Handling Implements; Store Service; Sheet and Web Feeding; Dispensing; Fluid Sprinkling; Fire Extinguishers; Coin Handling; Check Controlled Apparatus; Classifying and Assorting Solids; Boats; Ships; Aeronautics; Motor and Land Vehicles and Appurtenances; Railways and Railway Equipment; Brakes; Rigid Flexible and Special Receptacles and Packages.	
MATERIAL SHAPING, ARTICLE MANUFACTURING, TOOLS, GROUP 320—D. J. STOCKING, Director.....	12-01-69
Manufacturing Processes, Assembling, Combined Machines, Special Article Making; Metal Deforming; Sheet Metal and Wire Working; Metal Fusion—Bonding, Metal Founding; Metallurgical Apparatus; Plastics Working Apparatus; Plastic Block and Earthenware Apparatus; Machine Tools for Shaping or Dividing; Work and Tool Holders Woodworking; Tools; Cutlery; Jacks.	
AMUSEMENT, HUSBANDRY, PERSONAL TREATMENT, INFORMATION, GROUP 330—A. RUEGG, Director.....	11-14-69
Amusement and Exercising Devices; Projectors; Animal and Plant Husbandry; Butchering; Earth Working and Excavating; Fishing, etc.; Tobacco; Artificial Body Members; Dentistry; Jewelry; Surgery; Toiletry; Printing; Typewriters; Stationery; Information Dissemination.	
HEAT, POWER AND FLUID ENGINEERING, GROUP 340—C. F. GAREAU, Director.....	4-06-70
Power Plants; Combustion Engines; Fluid Motors; Pumps; Turbines; Heat Generation and Exchange; Refrigeration; Ventilation; Drying; Vaporizing; Temperature and Humidity Regulation; Machine Elements; Power Transmission; Fluid Handling; Lubrication; Joint Packing.	
CONSTRUCTIONS, SUPPORTS, TEXTILES, CLEANING, GROUP 350—T. J. HICKEY, Director.....	1-06-70
Joints; Fasteners; Rod, Pipe and Electrical Connectors; Miscellaneous Hardware; Locks; Building Structures; Closure Operators; Bridges; Closures; Earth Engineering; Drilling; Mining; Furniture; Receptacles; Supports; Cabinet Structures; Centrifugal Separations; Cleaning; Coating; Pressing; Agitating; Foods; Textiles; Apparel and Shoes; Sewing Machines; Winding and Reeling.	

Expiration of patents: The patents within the range of numbers indicated below expire during April 1971, except those which may have expired earlier due to shortened terms under the provisions of Public Law 690, 79th Congress, approved August 8, 1946 (60 Stat. 940) and Public Law 619, 83rd Congress, approved August 23, 1954 (68 Stat. 764), or which may have had their terms curtailed by disclaimer under the provisions of 35 U.S.C. 253. Other patents, issued after the dates of the range of numbers indicated below, may have expired before the full term of 17 years for the same reasons, or have lapsed under the provisions of 35 U.S.C. 151.

Patents..... Numbers 2,673,978 to 2,677,128, inclusive
Plant Patents..... Numbers 1,267 to 1,273, inclusive

PLANT PATENTS

GRANTED APRIL 13, 1971

Illustrations for plant patents are usually in color and therefore it is not practicable to reproduce the drawing.

3,040

APPLE TREE

Joseph D. Norton, 1120 Loftin Drive,
Auburn, Ala. 36830

Filed Feb. 24, 1969, Ser. No. 801,871

Int. Cl. A01h 5/03

U.S. Cl. Plt.—35

1 Claim

An apple tree which was discovered by a bud sport as a limb mutation of the variety Vance Red Delicious. In contrast with its parent, the new variety is of the spur type and the fruit is borne on spurs along the branches and ripens earlier, from two to three weeks earlier, than Vance Red Delicious.

3,041

AZALEA PLANT

Spencer R. Smith, Rockwood, Mich., assignor to Post
Gardens, Inc., Rockwood, Mich.

Filed May 7, 1969, Ser. No. 822,749

Int. Cl. A01h 5/12

U.S. Cl. Plt.—57

1 Claim

1. A new and distinct variety of azalea plant, substantially as herein shown and described, characterized particularly as to novelty by the unique combination of a bushy and medium vigorous plant habit, heavier and stronger stems than those of the parent variety "Chimes," attractive, dark glossy green foliage which is somewhat darker, heavier, thicker and more oval in shape than the foliage of "Chimes," a profuse and uniform blooming habit when grown in the greenhouse, an exceptionally large bloom size ranging from 4 to 5 inches as compared to the average 2 to 3 inch bloom size of "Chimes," a distinctive and attractive bloom shape which is more flat than in "Chimes," with the blooms having ruffled edges and raised, semi-double centers, a distinctive and attractive iridescent pink bloom color which is brighter and more glowing than the bloom color of "Chimes," and good lasting qualities of both foliage and blooms.

3,042

STRAWBERRY PLANT

Harold A. Johnson, Jr., and Harold E. Thomas, Watsonville, Calif., assignors to Driscoll Strawberry Associates, Inc., Watsonville, Calif.

Filed June 11, 1969, Ser. No. 832,510

Int. Cl. A01h 5/03

U.S. Cl. Plt.—49

1 Claim

1. The new and distinct variety of strawberry plant herein described and illustrated, and identified by the characteristics enumerated above.

3,043

STRAWBERRY PLANT

Harold A. Johnson, Jr., and Harold E. Thomas, Watsonville, Calif., assignors to Driscoll Strawberry Associates, Inc., Watsonville, Calif.

Filed June 11, 1969, Ser. No. 832,511

Int. Cl. A01h 5/03

U.S. Cl. Plt.—49

1 Claim

1. The new and distinct variety of strawberry plant herein described and illustrated, and identified by the characteristics enumerated above.

3,044

ROSE PLANT

Robert V. Lindquist, Riverside, Calif., assignor to Hemet Wholesale, Hemet, Calif.

Filed June 17, 1969, Ser. No. 834,180

Int. Cl. A01h 5/00

U.S. Cl. Plt.—11

1 Claim

1. A new and distinct variety of rose plant of the hybrid tea class, substantially as herein shown and described, characterized particularly as to novelty by the unique combination of a vigorous and bushy plant habit, attractive bright Irish green foliage which covers the plant well, perfectly formed flower buds which open slowly to attractive blooms usually borne singly and having symmetrically shaped petals forming large, classic flowers which retain their classic form even when fully open, a distinctive, and attractive soft medium pink flower color, and a pleasing fruity flower fragrance.

3,045

APPLE TREE

Ralph Banta, Green Forest, Ark., assignor to Merle J. Lucas, doing business as Green Forest Nursery, Green Forest, Ark.

Filed June 18, 1969, Ser. No. 834,564

Int. Cl. A01h 5/03

U.S. Cl. Plt.—34

1 Claim

This disclosure concerns a new and distinct variety of apple tree characterized by the fruit having a dark red uniform color and having an elongated shape with heavier stems than the Jonathan tree.

3,046

ALMOND TREE

Frederick R. Wells, Rte. 3, Box 80-A,
Chico, Calif. 95926

Filed July 22, 1969, Ser. No. 844,675

Int. Cl. A01h 5/03

U.S. Cl. Plt.—30

1 Claim

A variety of almond tree which is of medium size, vigorous and dense in growth with abundant foliage, blooms heavily, and is a regular and very heavy producer of nuts well distributed on the tree; the nuts being large, having a high percentage of kernel to shell, and of a form more elongated than the nuts of the Nonpareil and which the present variety most nearly resembles.

PATENTS

APRIL 13, 1971

GENERAL AND MECHANICAL

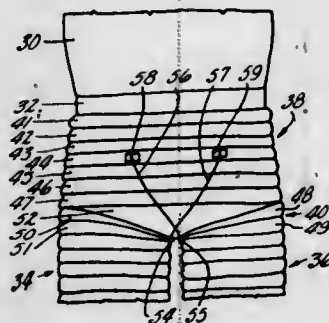
3,574,236

PRESSURIZED SUIT-HIP WAIST

Douglas E. Getchell, Windsor Locks; Edwin G. Vail, Simsbury; Michael A. Marroni, Jr., Westogue, Conn., and Harvey A. Smith, Hampden, Mass., assignors to United Aircraft Corporation, East Hartford, Conn.
Filed Dec. 20, 1968, Ser. No. 785,711
Int. Cl. A62b 17/00

U.S. Cl. 2-2.1

6 Claims



A torso in a pressurized suit is joined to substantially parallel convolutes in the thighs of each leg by a hip-waist, or lower trunk portion which includes parallel convolutes substantially across the area from the groin to the waist, and a small number of shaped convolutes together with a sheer panel to form a hip and crotch transition between the parallel convolutes of the lower trunk and the parallel convolutes of the thighs. The sheer panel may comprise three panels with the warp of the center panel perpendicular to the warp of the outer panels. A pair of doubly-crossed cables, from the center of the lower trunk in front through the crotch to the center of the lower trunk in the back, provide plug-load restraint.

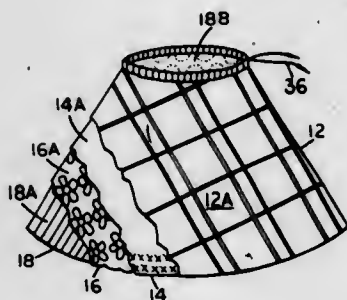
3,574,237

REVERSIBLE GARMENT

Muriel E. Reynolds, San Francisco, Calif. (954 Maddux Drive, Daly City, Calif. 94015)
Filed July 28, 1969, Ser. No. 845,216
Int. Cl. A41d 1/14

U.S. Cl. 2-211

8 Claims



A garment is made up of a plurality of skirts, positioned one inside the other. Each skirt has a number of loops fixed to its waist portion, and a belt passes through these loops, holding the skirt together. Both sides of each skirt are patterned, and the order of the patterns may be changed by moving the outermost skirt to the innermost position, by completely reversing the plurality of skirts by pulling them all inside out, and the like.

222

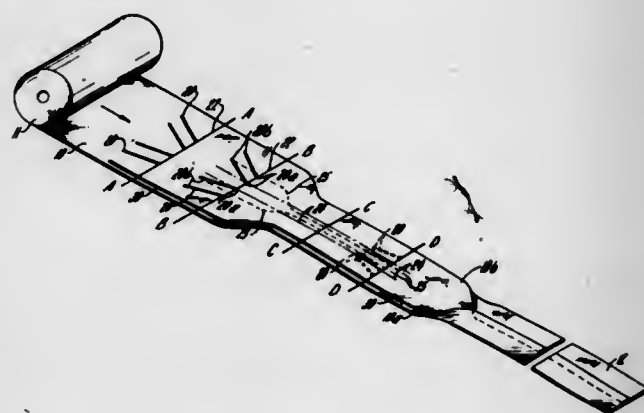
3,574,238

METHOD FOR PREFORMING A TAPERED SLEEVE FOR USE IN DISPOSABLE GARMENTS

Marion A. McCurry, Neenah, Wis., assignor to Kimberly-Clark Corporation, Neenah, Wis.
Filed Sept. 2, 1969, Ser. No. 854,438
Int. Cl. A41d 23/10

U.S. Cl. 2-243

11 Claims



A method of continuously preforming tapered sleeves for use in the manufacture of garments. Rows of transversely spaced adhesive strips are successively applied to a continuous web with each strip extending at an angle to the longitudinal axis of the web. The web is then folded along longitudinal lines passing through the leading and trailing points of each strip with the longitudinal line through the leading point of each strip being folded over the longitudinal line through the trailing point. The side portions of the web are then folded inwardly and secured together to form a flat tubular web shape. The web is then cut to sleeve length along successive transverse lines passing through the leading points of each row of adhesive strips with the row of adhesive strips of each length creating a tapered section in the sleeve.

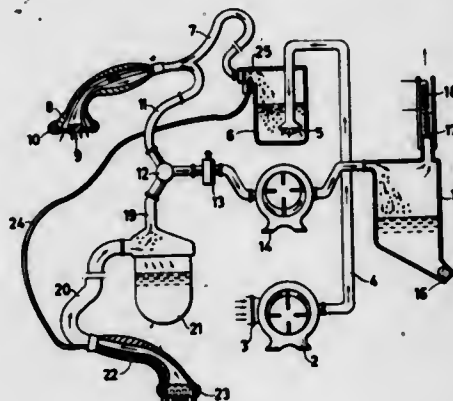
3,574,239

APPARATUS FOR WASHING PATIENTS HYGIENICALLY

Soren Sollerud, Norrkoping, Sweden, assignor to Svenska Utvecklingsaktiebolaget, Stockholm, Sweden
Filed Dec. 26, 1968, Ser. No. 786,988
Claims priority, application Sweden, Jan. 12, 1968, 448/68
Int. Cl. A47k 7/00, 17/00

U.S. Cl. 4-1

7 Claims



The invention concerns apparatus for bathing a bedridden patient whereby washing medium continuously is supplied centrally through a pressure nozzle and after its use is sucked off peripherally through a suction nozzle arranged about the pressure nozzle.

APRIL 13, 1971

GENERAL AND MECHANICAL

223

ERRATUM

For Class 4-254 see:
Patent No. 3,574,242

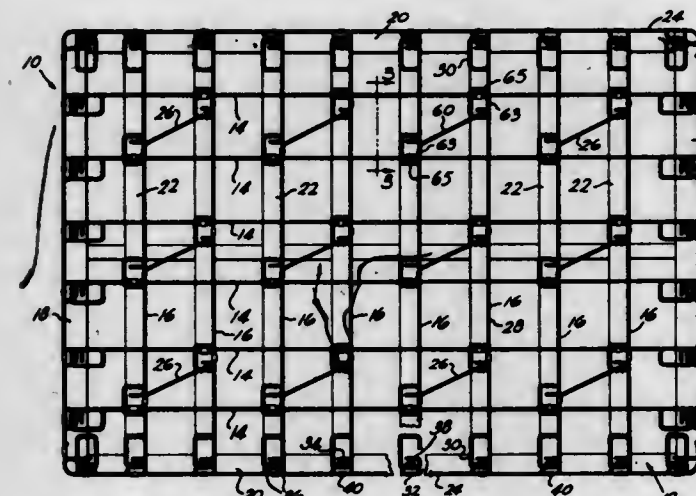
3,574,240

SPRING AND FRAME ASSEMBLY

Walter V. Slominski, Lexington, Ky., assignor to Hoover Ball and Bearing Company, Saline, Mich.
Filed Oct. 25, 1968, Ser. No. 770,707
Int. Cl. A47c 23/02

U.S. Cl. 5-247

9 Claims



A spring and frame assembly, particularly for box springs for beds, consisting of a plurality of main springs arranged crisscross fashion on a rectangular supporting frame and internal support springs supported on the frame and secured to the main springs. Each of the springs has a resilient end portion mounted on the frame, and most of these end portions are constructed so that they terminate in mounting torsion bars which extend transversely of the frame members, thereby transmitting spring forces to the frame as compression forces.

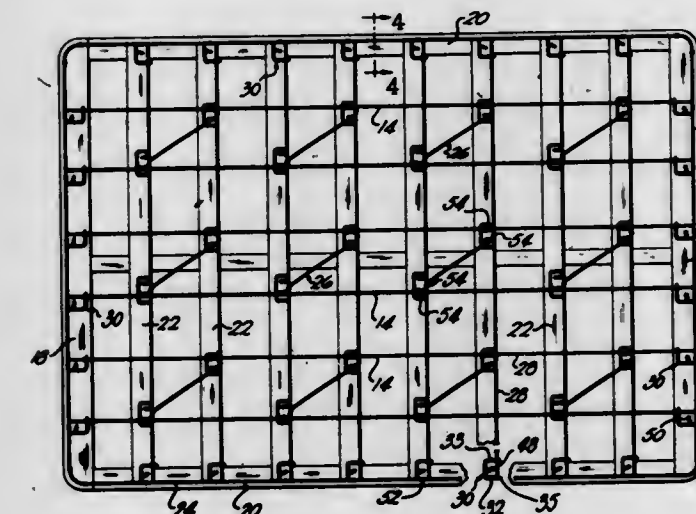
3,574,241

SPRING AND FRAME ASSEMBLY PARTICULARLY FOR BOX SPRINGS

Walter V. Slominski, Lexington, Ky., assignor to Hoover Ball and Bearing Company, Saline, Mich.
Filed Jan. 6, 1969, Ser. No. 789,314
Int. Cl. A47c 23/02, 23/04

U.S. Cl. 5-247

11 Claims



A spring and frame assembly, particularly for box springs for beds, consisting of a plurality of main springs arranged crisscross fashion on a rectangular supporting frame and internal support springs supported on the frame and secured to the main springs. Each of the main springs has a resilient end portion movable between an upwardly extending

position when not loaded and a downwardly compressed position when under load, and each of these end portions includes a pair of generally upright spacer bars that function to limit the magnitude of the downward movement of the main spring when under load.

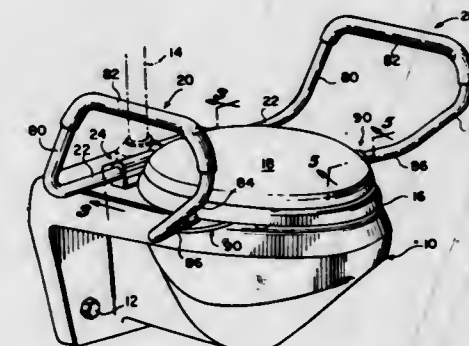
3,574,242

ARM ASSEMBLY FOR WATER CLOSET SEAT

Jeff James Trowbridge, Sheboygan Falls, Wis., assignor to Bemis Manufacturing Company, Sheboygan Falls, Wis.
Filed Apr. 8, 1969, Ser. No. 814,370
Int. Cl. E03d 11/00

U.S. Cl. 4-254

10 Claims



A pair of arms is provided having one end thereof fixed to the underside of a water closet seat. The opposite ends of the arms are intumed and supported within spaced bearings mounted in a support bracket fixed to the bowl of the water closet. Retaining pin means is provided for holding the arms in place. A pair of inner bearings are provided, and each includes a portion which supports the inner end of the arm means for rotation with respect to the support bracket, this inner bearing means also including a portion which supports both the water closet seat and the cover thereof for swinging movement with respect to the support bracket.

3,574,243

DRIPSTICK TOOL

Edward E. Yaste, Burlingame, Calif., assignor to Powerflow Engineering and Equipment Company, Inc., Palo Alto, Calif.

Filed Aug. 5, 1968, Ser. No. 750,186

Int. Cl. B25f 1/04

U.S. Cl. 7-14.6

4 Claims



A tool for withdrawing and replacing an aircraft dripstick between a rotationally secured first position within the underside of an aircraft and a second position of fuel volume indication without spillage of fuel.

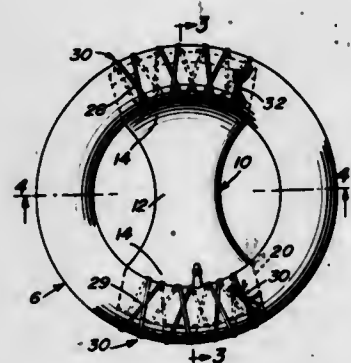
3,574,244

KIDDIE'S TUBE FLOAT

Philip L. Huss, Woodlane Road, Mount Holly, N.J.
Filed June 17, 1969, Ser. No. 834,052
Int. Cl. B63c 9/16

U.S. Cl. 9-347

5 Claims



A readily attachable and detachable seat for an annular inflatable buoyant-type tube such as those employed as an inner tube in a vehicle tire. The main or body portion of the attachment provides a saddle having a restricted median portion and progressively enlarged terminal end portions provided with integral adapters. Each adapter is channel-shaped to conformingly seat a portion of the inflated tube. Rows of lace-accommodating holes are provided at the respective ends of the attachment to accommodate manually attachable laces. These laces are threaded through the rows of holes provided therefor and are crossed and wrapped around the inflated tube with the free ends tied together.

3,574,245

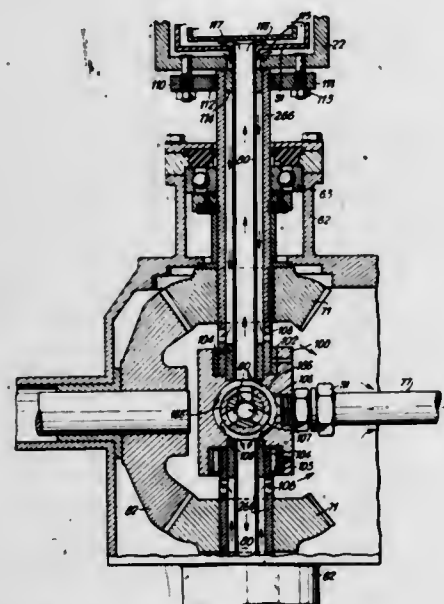
ROTATIONAL CASTING OF PLASTICS MATERIAL

Rolf Gordon Dohm, London, England, assignor to Dohm Plastics Machinery Limited, London, England
Filed Sept. 27, 1968, Ser. No. 763,284
Claims priority, application Great Britain, Oct. 4, 1967, 45,234/67

Int. Cl. B29c 5/04

U.S. Cl. 18-26

10 Claims



A rotational casting machine is provided in which the moulds are rotatable on two perpendicular axes and are heated or cooled by passing liquid through jackets around the moulds, the moulds being mounted on tubular housings rotatable in a bevel box which is itself rotated on a tubular shaft; the shaft, housing and box providing a first path for liquid to or from the moulds. A second path is provided by pipes concentric with the shaft and the housings. The moulds are preferably detachable, the fluid path therethrough being completed on mounting them on their housings. For additional rigidity, the housings may all be journaled in a

bearing block central of the bevel box, the bearing block also forming a distribution block for the pipes defining the second path for liquid.

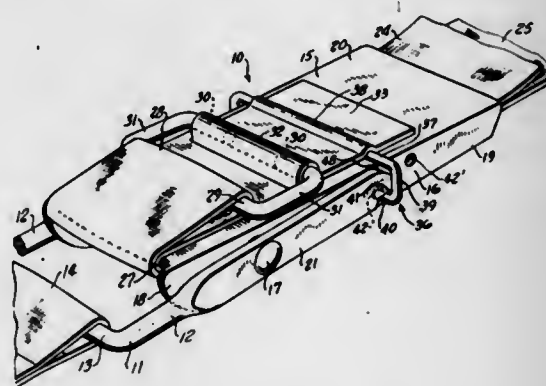
3,574,246

BUCKLE FOR CARGO-HOLDING STRAPS

Roy Norton, Milwaukee, and Glenn S. Thompson, Brown Deer, Wis.
Filed Feb. 11, 1969, Ser. No. 798,315
Int. Cl. A44b 21/00

U.S. Cl. 24-68

29 Claims



A buckle comprising a U-frame and a lever pivoted thereto, between its legs, to swing past a dead center position to and from a buckle-closed position tensioning a cargo-holding strap having one end secured to the frame and its other end portion looped around a terminal member on the lever. Latch means that can be manually or automatically activated or even held in an inactive condition, provides for releasably holding the lever against movement out of its strap-tensioning position.

3,574,247

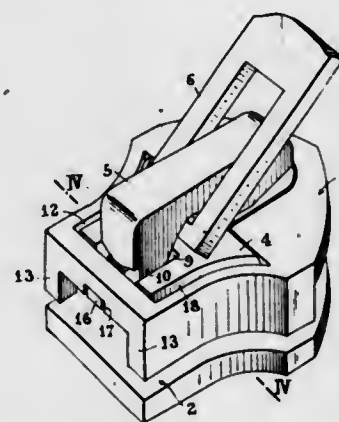
SLIDE FASTENER CONTROL ELEMENT

Horst Jakob, Choisy-le-Roe, France, assignor to Societe Financiere Francaise De Licences Et Brevets, Choisy-le-Roe (Val de Marne), France
Filed July 24, 1969, Ser. No. 844,578

Claims priority, application France, July 26, 1968, 160,850
Int. Cl. A44b 19/26

U.S. Cl. 24-205.15

2 Claims



A control slider for sliding fastener, of the type consisting of two elements assembled to each other in superposed relationship, said elements constituting the plates adapted to engage the two opposite faces of the sliding fastener one of said plates comprising the central core. One of these plates, namely the lower one, carries a lug adapted to support the ancillary elements of the slider, such as its locking member and its pull tab, the other plate being formed with a cavity adapted to receive said lug therein. The surface area of said cavity is sufficient to permit the passage of said ancillary elements carried by said lug and the two main elements are fastened to each other by crimping or elastic snap engagement of said hollowed upper plate over said lug rigid with the central core and carried by the other or lower plate.

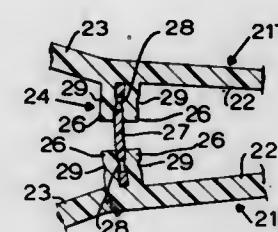
3,574,248

CLIP FOR CURRENCY AND OTHER PAPERS

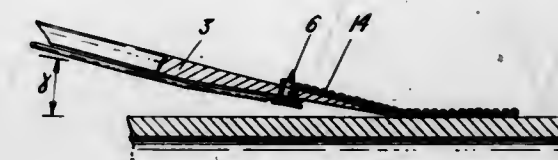
Armand J. Gaglia, 339 Broadway-Apt. 104, Alameda, Calif.
Filed Dec. 12, 1968, Ser. No. 783,331
Int. Cl. A44b 21/00

U.S. Cl. 24-252

7 Claims



A clip for currency or papers is formed of two leaves hinged together near one end having finger grip portions beyond the hinge in one direction and paper grips in the opposite direction. The leaves may be made in various shapes and emblems, logos, monograms etc. may be formed integrally with or applied to the leaves. Associated with the hinge is a resilient means for biasing the paper grip portions together. Such means may be a torsion spring imbedded in the hinge eyes, a leaf spring having opposite edges imbedded in protuberances on the leaves, or the hinge members may be of deformable plastic which is distorted during assembly to bias the leaves together.



lifted threads are cut by a breaking member which may be a knife or a heated needle on the top of the lifting member. Alternatively a heated member, a rotating disc or fixed knife may be inserted in a slot in the lifting member.

3,574,251

CUTTING TOOL

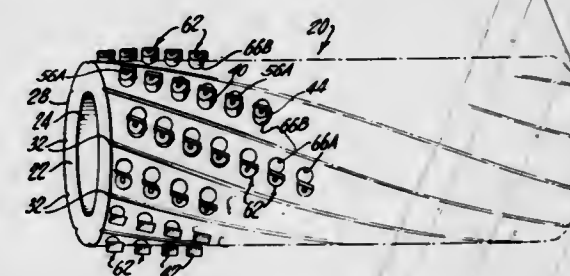
Marc A. Corti, Brookfield, Conn., assignor to Marcoloy, Inc., Stamford, Conn.

Continuation-in-part of application Ser. No. 628,515, Feb. 24, 1967, which is a continuation-in-part of application Ser. No. 379,530, July 1, 1964, now abandoned. This application Feb. 19, 1969, Ser. No. 849,932

Int. Cl. B26d 1/12, 1/00; B24b 19/00

U.S. Cl. 29-105

15 Claims



A cutterhead carries a plurality of cutting tools arranged in helical rows and disposed in separate recesses which preferably are round. A locking structure including a locking cup and screw is disposed in a separate round recess adjacent the recess in which the cutting tool is disposed and partly in communication with that recess at the cutter surface, whereby automatic alignment of these portions will be achieved upon insertion. The shank of each tool has a tapered portion which is inclined to the axis of the recess with the widest part of the tool being located at the bottom of the recess into which it is disposed. The locking cup also has a tapered wedge portion which engages the cutting tool wedge portion. When the locking screw is forced downwardly, it forces the locking cup's tapered surface against the corresponding juxtaposed cutting tool's tapered shank portion, thereby locking the cutting tool within its recess. Preferably the shanks are bored longitudinally so that an adjusting tool can be passed to an adjusting screw disposed in the lower threaded portion of the bore to adjust the relative positioning of the cutting tool with respect to the surface of the head. Means are also provided whereby the withdrawal of the locking cup releases the cutting tool and a method is disclosed whereby the locking of the cutting tool is made more effective.

3,574,252

METHOD OF MAKING ROLL ASSEMBLY

Selwyn R. Rackoff, Pittsburgh, and Martin J. Dempsey, Bethel Park, Pa., assignors to American Shear Knife Co., West Homestead, Pa.

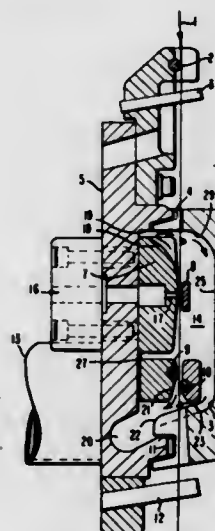
Original application Dec. 22, 1967, Ser. No. 692,785, now Patent No. 3,435,499. Divided and this application Oct. 28, 1968, Ser. No. 771,115

Int. Cl. B21d 53/12; B21h 1/12, 1/14; B21k 1/02, 1/04

U.S. Cl. 29-148.4

4 Claims

The Specification describes an apparatus for removing thread wastes from a textile thread carrier, in which a lifting



An enclosure surrounds a jet device for fluid treating a threadline passing through the enclosure. The jet device has a curved surface positioned with respect to the threadline, the stream-forming orifice of the jet and a wall of the enclosure to divert the treating fluid traveling along the threadline away from the threadline and redirect it across the threadline near the threadline passage openings in the enclosure.

3,574,250

APPARATUS FOR REMOVING TEXTILE THREAD WASTE FROM A TEXTILE THREAD CARRIER

Maurice Bissauge, Francheville-Le-Bas, France, assignor to Societe Rhodiaceta, Paris, France

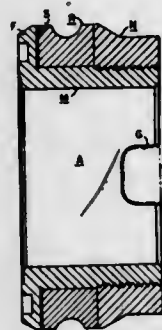
Filed Dec. 20, 1968, Ser. No. 785,717

Claims priority, application France, Dec. 20, 1967, 133,126
Int. Cl. D03d 45/58

U.S. Cl. 28-19

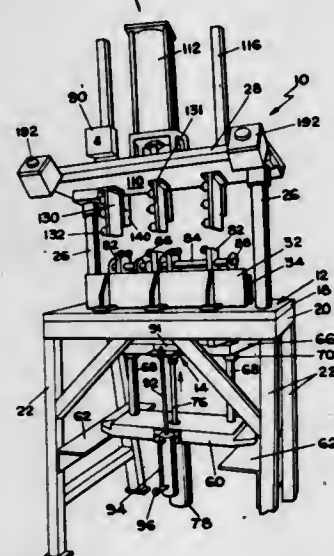
4 Claims

diameter equal to the outside diameter of the mandrel and the mandrel is cooled to a low temperature and then the insert is slipped over it. When the mandrel rises to room temperature, the insert is firmly held without being



excessively stressed. The insert is clamped firmly between the flange of the mandrel and a nut by screwing the nut on with a spanner wrench which engages grooves in the nut. Slots coextensive with the grooves are then cut in the mandrel and a key is inserted in the grooves and slots.

3,574,253
CONSTRUCTION UNIT ASSEMBLY AND APPARATUS
Charles Kay, Wyoming, Mich., assignor to J. Raymond Christy Enterprises, Inc., Grand Rapids, Mich.
Filed Feb. 19, 1969, Ser. No. 800,620
Int. Cl. B23p 17/00, 19/00
U.S. Cl. 29-155 14 Claims

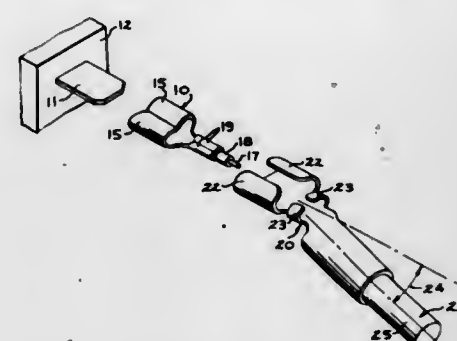


A machine and method for rapidly and accurately assembling panels or slabs as of wood and interconnecting binder plates as of steel into structural building unit components, employing dynamic panel spacing and retention in combination with panel slotting and plate insertion.

3,574,254
TOOL FOR APPLYING ELECTRICAL TERMINALS
Marshall T. Harris, Louisville, Ky., assignor to General Electric Company
Filed July 1, 1969, Ser. No. 838,200
Int. Cl. H01r 43/00
U.S. Cl. 29-203 5 Claims

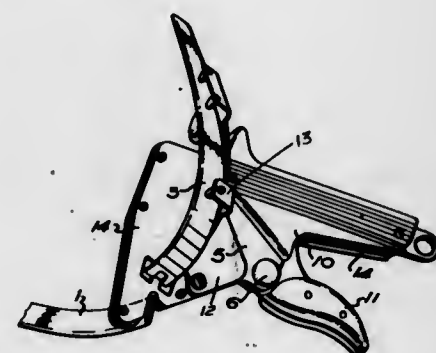
A tool is provided for installing female electrical terminals onto male electrical terminals, the tool comprising a head member having opposed sidewall portions which encompass the female terminal sufficiently to limit the deformation thereof during installation, and having at least one stop portion to limit the relative movement of the female terminal

and the head member. An elongate handle is secured to the head member and disposed at an angle thereto sufficient to



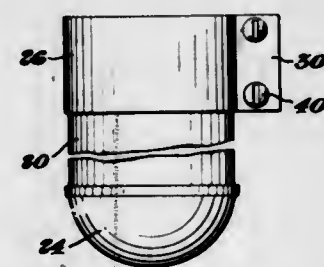
minimize interference with any electrical conductors secured to the female terminal.

3,574,255
TOOLS OR DEVICES FOR APPLYING TRAVELLERS TO THE RINGS OF RING SPINNING OR TWISTING MACHINES
John Mortimer, Lochwinnoch, Scotland, assignor to Eadie Bros. & Company Limited, Paisley, Scotland
Filed Sept. 16, 1968, Ser. No. 762,239
Int. Cl. B23p 19/04
U.S. Cl. 29-207 3 Claims



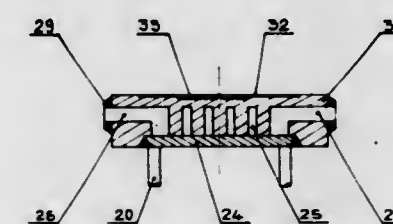
A tool for applying travelers to the rings of textile ring spinning and like frames in which the travelers are applied by a sliding double blade, one member of which is moved by the actuation of the tool and the other by a spring on movement of the first member.

3,574,256
METHOD OF REPAIRING A GLASS-COATED SURFACE
Raymond Burt Chase, Midland, Mich., assignor to The Dow Chemical Company, Midland, Mich.
Filed May 27, 1968, Ser. No. 732,361
Int. Cl. B23p 17/00
U.S. Cl. 29-401 2 Claims



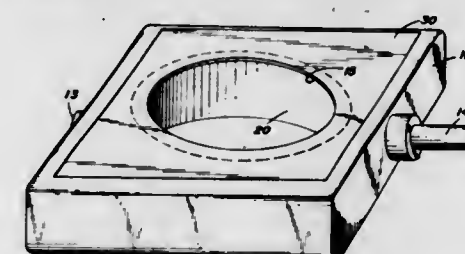
A hollow, terminating structure coated with glass to resist corrosion, when chipped, is patched with a conforming sheath of corrosion resistant metal secured through opposed projecting flanges and filled with resin cured in situ.

3,574,257
AUTOMATIC CUTTING OF A SUBSTRATE COATED WITH THIN LAYERS
Georges Du Bois, and Ghislaine Goupil, Paris, France, assignors to Societe Lignes Telegraphiques Et Telephoniques, Paris, France
Filed Apr. 28, 1969, Ser. No. 819,678
Claims priority, application France, May 10, 1968, 151,382
Int. Cl. B23p 17/00
U.S. Cl. 29-424 3 Claims



A process for cutting a substrate the surface of which bears a large number of identical or different components and which are formed at least to some extent by thin films. The substrate is kept stationary relatively to the cutting tool by immersion in a liquid and freezing thereof. The liquid may be water

3,574,258
METHOD OF MAKING A TRANSREFLECTOR FOR AN ANTENNA
Charles W. May; Franklin A. Porter, Indianapolis, and John W. Pickett, Fort Wayne, Ind., assignors to the United States of America as represented by the Secretary of the Navy
Filed Jan. 15, 1969, Ser. No. 791,270
Int. Cl. H01p 11/00; H01q 13/00
U.S. Cl. 29-600 1 Claim

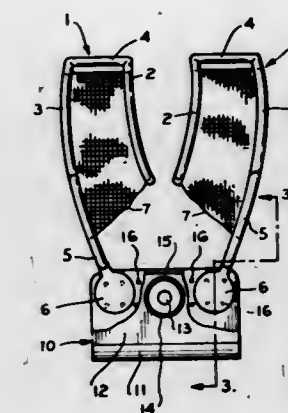


A method of making a transreflector for an antenna comprising first preparing a grating of equally spaced parallel wires, and then attaching said grating to a flat sheet of plastic material. The sheet of plastic material is then shaped into a segment of a right circular cone having a parabolic end surface on which the spaced parallel wires are positioned, by use of a heated-vacuum die. The formed sheet of plastic material is then attached to a metallic mounting ring.

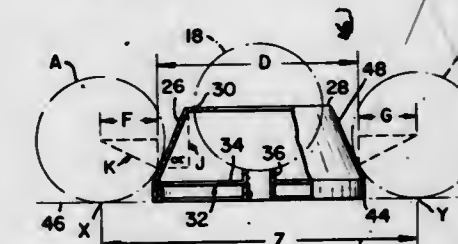
3,574,259
DEVICE FOR OBTAINING IMPRESSION OF OCCLUSAL SURFACES OF THE TEETH IN CENTRIC OCCLUSION
Russel J. Jones, 13804 Lake Shore Drive, Cleveland, Ohio
Filed Nov. 6, 1969, Ser. No. 874,578
Int. Cl. A61c 9/00
U.S. Cl. 32-17 9 Claims

The tray comprises two identical frames each open at the front and having a buccal frame member and a lingual frame member connected by a rear frame member. The buccal member at its forward end has a handle which, at its forward end, has a connecting portion. A clamp common to the frames detachably clamps the connecting portions in adjusted positions wherein the frames are spaced edgewise from each other in coplanar relation with the lingual members innermost. The frames can be adjusted edgewise by swinging them about the connecting portions and by moving the connecting portions bodily toward and away from each other. A sheet of soft, flexible woven sheet material bridges from the lingual to the buccal frame member of each frame.

Each frame is composed of plastic with the members, handle, and connecting portion integral. The lateral margins of the

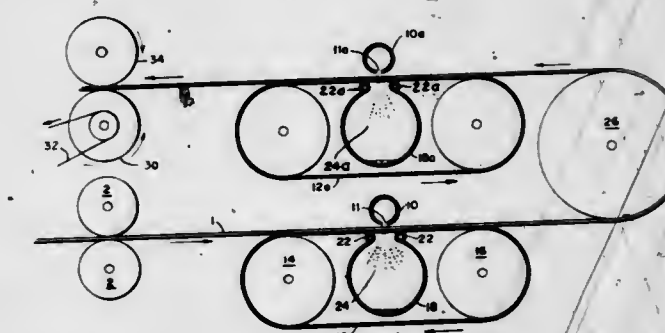


3,574,260
GOLF BALL SPHERICITY GAUGE AND PUTTING DEVICE
Walter M. Smyk, 437 Valencia Drive, South San Francisco, Calif., and Frank E. Turner, 3 Greenfield Court, San Mateo, Calif. 94403
Filed Sept. 29, 1969, Ser. No. 861,568
Int. Cl. G01b 3/34
U.S. Cl. 33-178 4 Claims



A golf ball sphericity gauge having an aperture into which snugly fits the largest cross-sectional area of a standard-size golf ball. A support is fixed relative to the body of the device for positively supporting the golf ball in such position. The outer dimensions of the device are such that, if it is placed on a horizontal surface and contacted by a golf ball rolling on that surface, the golf ball will fall within the area defined by a standard-size golf hole.

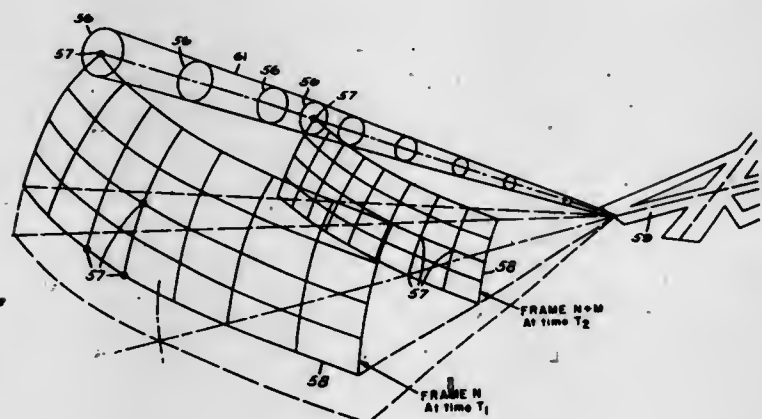
3,574,261
APPARATUS AND METHOD FOR DRYING PERMEABLE WEBS
Herman H. Bailey, Belmont, Mass., assignor to W. R. Grace & Co., Cambridge, Mass.
Filed Sept. 24, 1968, Ser. No. 771,379
Int. Cl. F26b 5/00
U.S. Cl. 34-23 8 Claims



A moving textile web is expunged of liquid by a very high-pressure air-jet which is directed through a thin slot transverse to the direction of travel of the web. The jet is

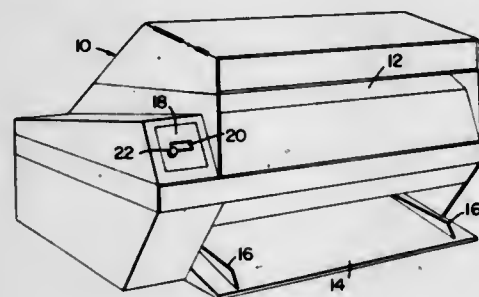
directed downwardly at the web which is horizontally supported by an open weave wire belt. The wire belt moves at a speed different from that of the web in order to avoid a pattern formation on the web as it is impressed on the belt by the force of the air jet.

3,574,262
CINEMATOGRAPHIC APPARATUS
John Kent Bowker, Marblehead, Mass., assignor to Itel Corporation, Lexington, Mass.
Filed May 25, 1967, Ser. No. 641,329
Int. Cl. G03b 19/18
U.S. Cl. 35-12 40 Claims



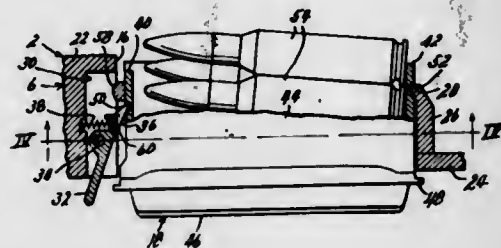
A method and apparatus for simulating flight along a random path toward a given point. Several sequences of motion pictures are taken during approaches along closely spaced known paths toward the given point. A plurality of projectors and control apparatus are provided for projecting onto a display area a sequence of interspersed individual pictures from the plurality of motion picture sequences. The individual picture projected at each instant represents the picture which most closely corresponds with the picture that would be taken from a point simulated by the controls of the flight-simulating apparatus at that instant.

3,574,263
EXAMINATION GRADING COMPUTER
Joe Del Elia, Scottsdale, Ariz., assignor to Educational Computer Systems, Inc., Phoenix, Ariz.
Filed July 11, 1968, Ser. No. 744,590
Int. Cl. G09b 7/00; G06k 7/14
U.S. Cl. 35-48 5 Claims



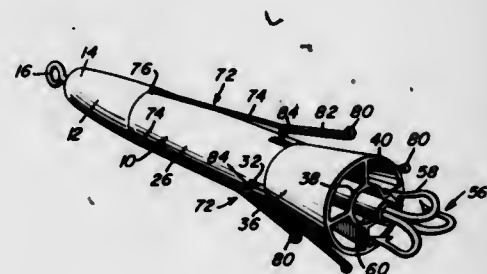
A portable examination grading computer in which an opaque master answer guide may be mounted on a rotating drum having sources of illumination mounted therein, and photoelectric sensors mounted opposite. Student answer sheets, having answers marked in appropriate locations by blacking in answer areas, may be engaged with the drum for rotation past the source of illumination. If light passes through an appropriate perforation in the opaque master answer guide and through an unmarked answer area on the student answer sheet, the computer circuitry will actuate a marker adjacent the incorrect answer on the answer sheet and will tally the total of incorrect answers.

3,574,264
MAGAZINE ASSEMBLY FOR AUTOMATIC RIFLES
Ernest P. Simmons, Sr., Olathe, Kans. 66061
Filed July 14, 1969, Ser. No. 841,396
Int. Cl. F41c 25/02
U.S. Cl. 42-6 4 Claims



In an automatic rifle having an ammunition magazine insertable in a recess provided therefore in the receiver portion of the gun, a projection on said magazine preventing its insertion into said recess in any but its correct position, and means preventing interference by said projection with the latch means for securing said magazine in said recess.

3,574,265
FISH LURE WITH PROJECTABLE HOOK ASSEMBLY
Alfred M. Gibbons, Amarillo, Tex., assignor to Holiday Products, Inc.
Filed Dec. 27, 1968, Ser. No. 787,487
Int. Cl. A01k 83/02
U.S. Cl. 43-35 5 Claims

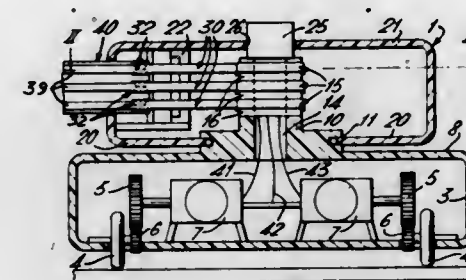


A fishing lure characterized by an attractive plastic or an equivalent plug having a blunt-nose leading end, a median body portion, and a conical rearwardly and outwardly flaring tail portion. The constructed plug has an axial bore which houses a spring-loaded projectable and retractable plunger and fishhook assembly. When cocked and in a position close up to the tail, the fishhook is rendered substantially weedless. When the fish takes the plug and squeezes in on the spring wire triggers, the triggers function to impart rotation to a detent-equipped latching and releasing collar, whereupon the spring-loaded plunger is released and sets the prongs of the hook in the mouth of the fish.

3,574,266
SLIPRING ASSEMBLY
Kamal Ahmed, Middlesex, England, assignor to AMP Incorporated, Harrisburg, Pa.
Filed Aug. 25, 1969, Ser. No. 852,702
Claims priority, application Great Britain, June 26, 1969, 32,235/69
Int. Cl. A63h 33/26
U.S. Cl. 46-240 8 Claims

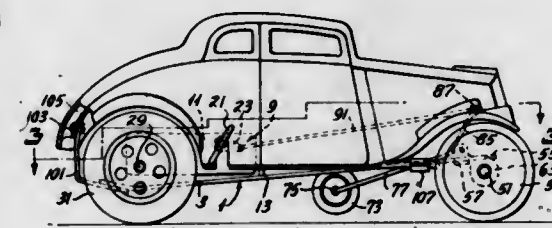
A carriage having a pair of driven wheels, each wheel of the pair being driven by a separate electric motor to permit differential steering of the carriage. A slipring assembly is provided on the carriage and forms a part of a feed path for

supplying power to the electric motors. The carriage can be arranged immediately below a board on which a toy vehicle



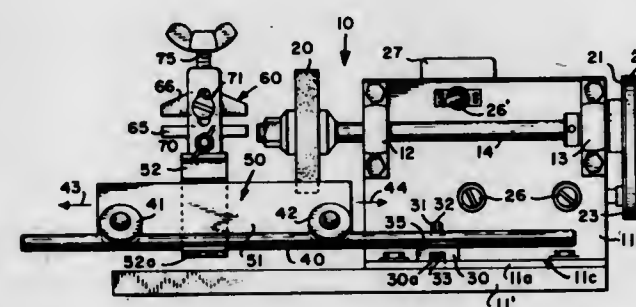
stands and can be indirectly coupled to the toy vehicle by a permanent magnet.

3,574,267
WHEEL STAND TOY VEHICLE
Louis O. Schorsch, 653 Sherwood Circle, Monterey Park, Calif.
Filed July 17, 1969, Ser. No. 842,524
Int. Cl. A63h 17/00
U.S. Cl. 46-211 10 Claims



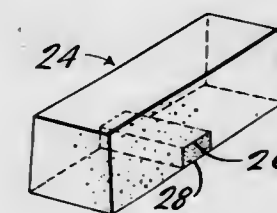
The fifth wheel is periodically pivoted into and out of contact with the supporting surface for performing wheel stands during forward movement of the vehicle by a spring motor driven rotating crank and lever system. The front wheels of the vehicle are adjustably mounted on the side rails for changing the length of the wheel base to accommodate various body styles and models.

3,574,268
TOOL SHARPENING APPARATUS
Frederick A. Buse, 141 Loma Alta Ave., Los Gatos, Calif.
Filed Feb. 19, 1969, Ser. No. 800,586
Int. Cl. B24b 3/52, 41/02
U.S. Cl. 51-92 8 Claims



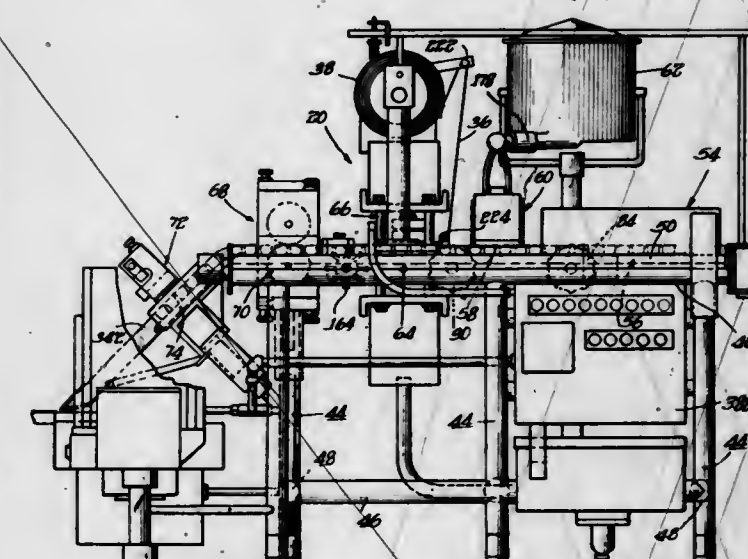
A scissor-sharpening apparatus wherein a vise holds a scissor blade to be sharpened and the vise is pivotally mounted on a carriage. Supporting the carriage are longitudinally spaced rollers which travel along a rod. The carriage travels along the rod in a rectilinear path and also is movable along an arcuate path about the axis of the rod. The rectilinear path for the carriage is parallel to the axis of a grinding wheel. In this manner, the scissor blade is brought into position parallel with the grinding wheel and is freely movable toward and away from the grinding wheel to effect the sharpening of the scissor blade.

3,574,269
BRICK WITH WEAR INDICATOR
Robert F. Rea, Bloomfield Township, Oakland County, Mich., assignor to Champion Spark Plug Company, Toledo, Ohio
Filed Mar. 9, 1966, Ser. No. 533,033
Int. Cl. E04b 1/12
U.S. Cl. 52-105 3 Claims



A ball mill has a lining of bricks with colored inserts extending toward the face of the brick from the back thereof for a distance of one-eighth to one-third the thickness of the brick. When the bricks wear to the point of possibly failing, the colored inserts are readily visible to show that the linear requires replacement. Preferably the colored inserts are of the same refractory material as the bricks themselves and have a coloring material added thereto. This minimizes contamination of the material being ball milled.

3,574,270
PACKAGING MACHINE
Guenter Rosendahl, Arlington Heights, Ill., assignor to Illinois Tool Works, Inc.
Filed Sept. 26, 1968, Ser. No. 762,749
Int. Cl. B65b 3/12
U.S. Cl. 53-281 13 Claims

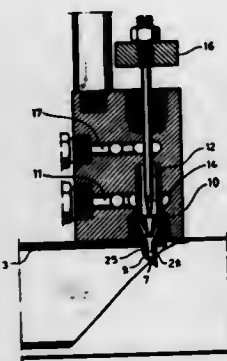


There is disclosed a machine for filling and assembling a plurality of packages which are initially interconnected and are then severed from each other. The machine is adapted to package food products such as milk and parts thereof including means for advancing containers, means for dispensing material into the containers, means for sealing the containers and means for severing containers from each other and actuating mechanisms therefor are constructed so as to be readily assembled and serviced and so as to facilitate cleaning of the entire apparatus.

3,574,271
APPARATUS FOR SEALING A VALVE OPENING
Nils Eric Andersson, Stromsnasbruk, Sweden, assignor to Skogsagarnas Industri Aktiebolag, Stromsnasbruk, Sweden
Filed Mar. 26, 1969, Ser. No. 810,687
Claims priority, application Sweden, Apr. 1, 1968, 4319/68
Int. Cl. B65b 7/02
U.S. Cl. 53-285 7 Claims

A method and apparatus are provided for employing an adhesive into the valve opening of valve sacks in order to

produce a sealing of the valve opening after the sack has been filled. The adhesive is injected into the valve through an opening in the sack communicating with the inside of the



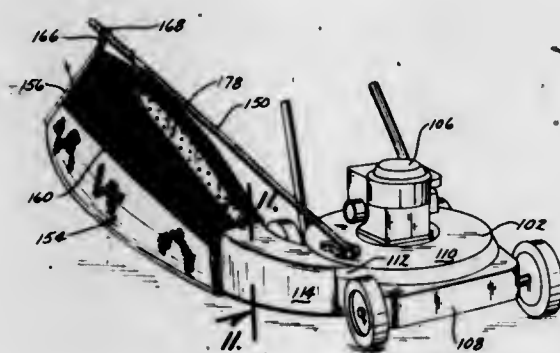
valve. The apparatus includes a punching member arranged to produce said opening and to deliver the adhesive in the desired amount.

3,574,272

COMBINATION LAWNMOWER AND LEAF RAKE
Ralph W. Krewson, 629 Bompart, Webster Groves, Mo.
Original application Feb. 20, 1967, Ser. No. 617,408. Divided
and this application Apr. 1, 1969, Ser. No. 812,009
Int. Cl. A01d 53/06

U.S. Cl. 56-202

7 Claims



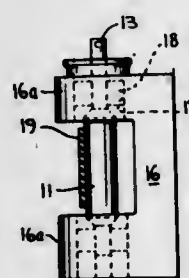
A rotary lawnmower and leaf rake includes a wheeled housing with a discharge opening therein. Chute means are secured to the housing in communication with the discharge opening and support means are secured to the housing and extend upwardly and rearwardly therefrom. A carrier bag and an inner bag removably received within the carrier bag have closed rearward ends and have their forward ends surrounding the chute means and held to the chute means by means of a resilient band.

3,574,273

FALSE TWIST SPINDLE AND METHOD OF THREADING THE SAME
Richard G. Hilbert, Esmond, R.I., assignor to Leesona Corporation, Warwick, R.I.
Filed May 8, 1969, Ser. No. 823,027
Int. Cl. D02g 1/04; D01h 7/92

U.S. Cl. 57-77.3

18 Claims



Disclosed is a spindle blade for a false twist spindle characterized by a unitary element blade and a twist trapping

pin that is mounted on one end of the spindle blade. The pin is located within the bore in the blade and the wall of the tube is characterized by the absence of any apertures therethrough. The blade is able to withstand rotational forces generated by a very high speed of rotation. Due to the enclosed position of the pin it is necessary to provide a method for threading the false twist spindle and such a method is also disclosed.

3,574,274

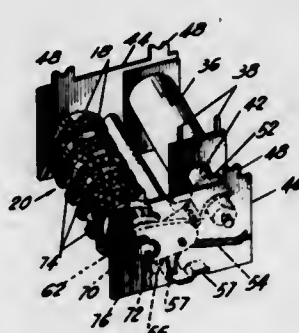
SOLID-STATE HOUR METER

Arthur J. Little, Springfield, and William R. Mayer, Rochester, Ill., assignors to Stewart-Warner Corporation, Chicago, Ill.

Filed May 5, 1969, Ser. No. 821,876
Int. Cl. G04c 3/00

U.S. Cl. 58-23

7 Claims



The following specification describes an hour meter assembly utilizing a solid-state circuit applying appropriately timed pulses to a coil capable of driving the meter dials with portions of the coil magnetic circuit and terminals supplying electrical power to the circuit serving to locate and secure an assembly of the solid-state circuit and dials in a meter case.

3,574,275

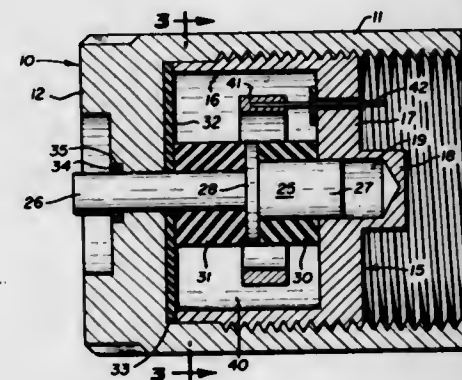
THERMALLY ACTUATED MOTOR WITH AUTOMATICALLY RETURNABLE SHAFT

Marvin A. Staschke, Glendora, Calif., assignor to Thermal Hydraulics Corporation, Glendora, Calif.

Filed Sept. 24, 1969, Ser. No. 860,594
Int. Cl. F01k 27/00

U.S. Cl. 60-23

12 Claims



A thermally actuated motor provided with an axially reciprocable, automatically returnable shaft, comprising a differential diameter shaft having a radially extending flange between its larger and smaller diameter members, and a rubber sleeve surrounding each of said shaft members and bearing on opposite sides of the flange between said flange and end walls of a housing which contains the shaft, a heating element and expansible material. Pressure of the expansible heated material on the shaft through the rubber sleeves causes movement of the shaft in one direction, and withdrawal of pressure due to cooling of the expansible material automatically causes movement of the shaft in the opposite direction. The rubber sleeves also serve as seals to prevent loss of expansible material from the housing.

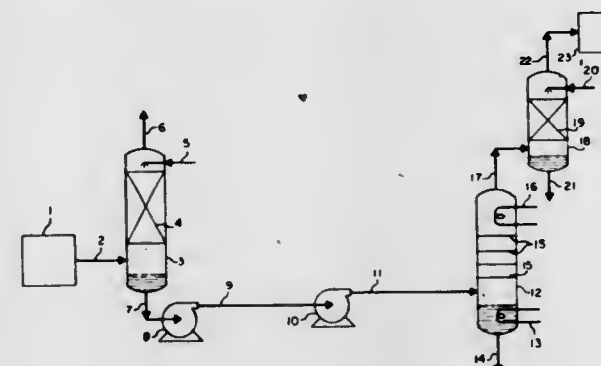
3,574,276

METHOD FOR TRANSPORTING ACETYLENE
Samuel Strelzoff, New York, N.Y., assignor to Chemical Construction Corporation, New York, N.Y.

Filed June 12, 1968, Ser. No. 736,436
Int. Cl. F17c 11/00; F17d 1/04

U.S. Cl. 62-48

7 Claims



Acetylene is transported from a production site to a distant utilization site by dissolving the acetylene in liquid ammonia at the production site to form a liquid solution, transporting the liquid solution from the production site to the utilization site, and recovering substantially pure acetylene from the liquid solution at the utilization site.

3,574,277

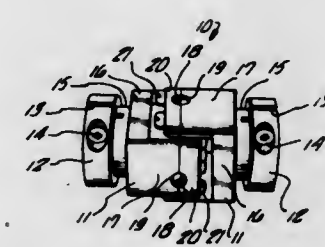
FRICTIONLESS UNIVERSAL JOINT

T. O. Paine, Deputy Administrator of the National Aeronautics and Space Administration in respect to an invention of, and Sherwood D. Mayall, La Crescenta, Calif.

Filed Apr. 4, 1969, Ser. No. 813,488
Int. Cl. F16d 3/42

U.S. Cl. 64-18

12 Claims



The invention disclosed herein describes a universal joint having two coupling members pivotally connected to a gimbal plate about two axes of rotation. The pivot members that interconnect the relatively rotating members each include a pair of sleeves flexibly connected to each other by a plurality of leaf springs. The relative flexing of each pair of sleeves permits each pivot member to be fixedly mounted within bores formed within the respective coupling members and gimbal plate, thereby enabling the universal joint to operate frictionlessly without lubrication.

3,574,278

APPARATUS FOR IMPACT DYEING FIBERS
James G. T. Paterson, Decatur, Ala., assignor to Monsanto Company, St. Louis, Mo.

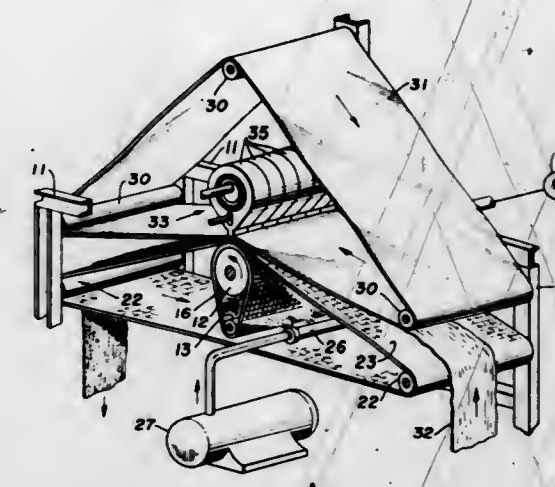
Filed July 31, 1969, Ser. No. 846,535
Int. Cl. D06f 35/00

U.S. Cl. 68-204

8 Claims

An apparatus for impact dyeing a bundle of fibers wherein the fiber bundle is sandwiched between an open belt and an impervious belt and brought into contact with a compartmented porous belt containing a dye, the porous belt

contacting the open belt. Impact forces applied through the impervious belt to the porous belt drive the dye from the



porous belt through the open belt and into the bundle of fibers.

3,574,279

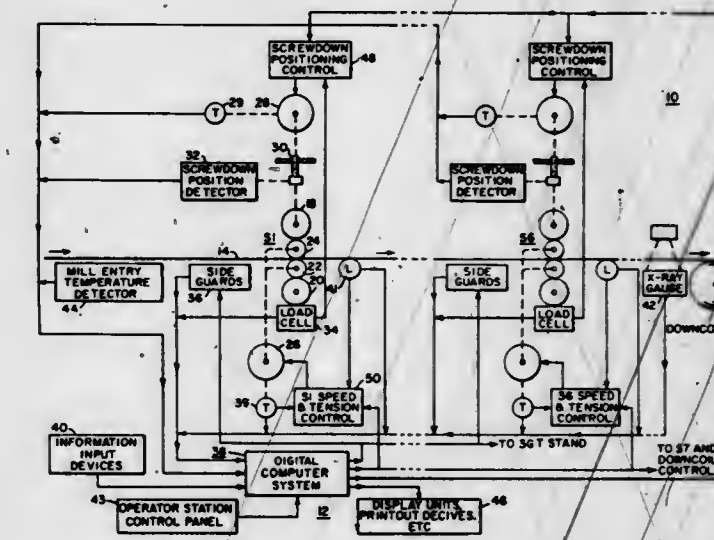
PREDICTIVE GAUGE CONTROL METHOD AND APPARATUS WITH AUTOMATIC PLASTICITY DETERMINATION FOR METAL ROLLING MILLS

Andrew W. Smith, Jr., Pittsburgh, Pa., assignor to Westinghouse Electric Corporation, Pittsburgh, Pa.

Filed Jan. 8, 1970, Ser. No. 3,579
Int. Cl. B21b 37/02, 37/08

U.S. Cl. 72-7

15 Claims



A programmed computer control system provides online predictive roll force gauge control and screwdown offset gauge control for a tandem hot steel strip mill. A gauge control program calculates corrective screwdown movement including that predictively required at each gauge-controlled stand for optimum or near optimum gain correction of roll force error on the basis of online detected roll force and screwdown position values at that stand and on the basis of a mill spring constant which is predetermined for that stand and a workpiece plasticity value which is automatically determined from roll force and workpiece entry and delivery gauges at that stand. The control system operates the mill screwdowns in accordance with the program calculations.

3,574,280

PREDICTIVE GAUGE CONTROL METHOD AND APPARATUS WITH ADAPTIVE PLASTICITY DETERMINATION FOR METAL ROLLING MILLS

Andrew W. Smith, Jr., Pittsburgh, Pa., assignor to Westinghouse Electric Corporation, Pittsburgh, Pa.

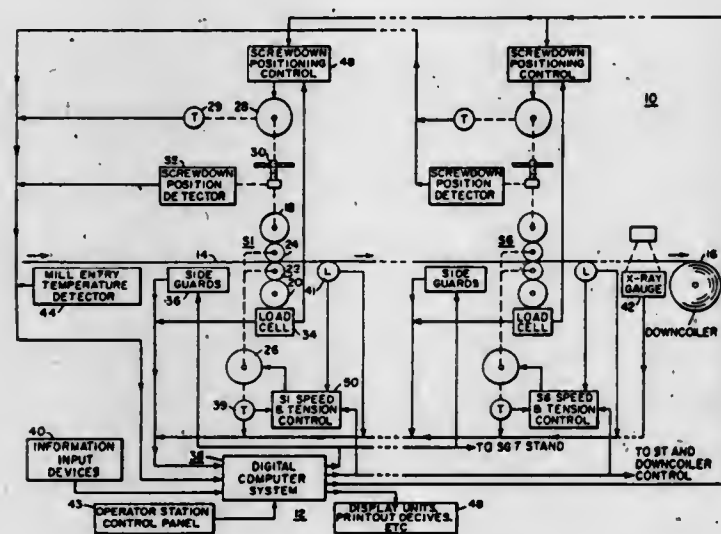
Filed Nov. 12, 1968, Ser. No. 774,638
Int. Cl. B21b 37/12

U.S. Cl. 72-8

12 Claims

A programmed computer control system provides on line predictive roll force gauge control and screwdown offset

gauge control for a tandem hot steel strip mill. A gauge control program calculates corrective screwdown movement including that predictively required at each gauge controlled stand for optimum or near optimum gain correction of roll force error on the basis of on line detected roll force and screwdown position values at that stand and on the basis of a mill spring constant which is predetermined for that stand and a determined workpiece plasticity value for that stand.



The workpiece plasticity values in determining the screwdown control action at each stand are adaptively modified during the workpiece rolling period on the basis of in process measurements of roll force and screwdown position at that stand. The control system operates the mill screwdowns in accordance with the program calculations made from the updated plasticity values.

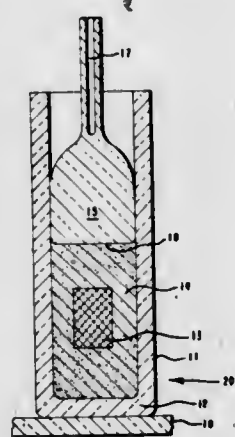
3,574,281

DILATOMETER CELL

Donald L. Casey, and Gerald W. Miller, Wilmington, Del.
Filed Sept. 2, 1969, Ser. No. 854,562
Int. Cl. G01n 25/16

U.S. Cl. 73-16

14 Claims



A cubical dilatometer cell comprising a receptacle, a particulate filling medium for containing the sample contained within the receptacle, and a piston adapted to move linearly in response to volume changes in the sample and filling medium. The receptacle, piston and filling medium are all made from materials having a low coefficient of expansion. In a preferred embodiment, the dilatometer cell comprises a fused quartz cylinder and piston.

3,574,282

ENGINE TEMPERATURE SPREAD DETECTOR

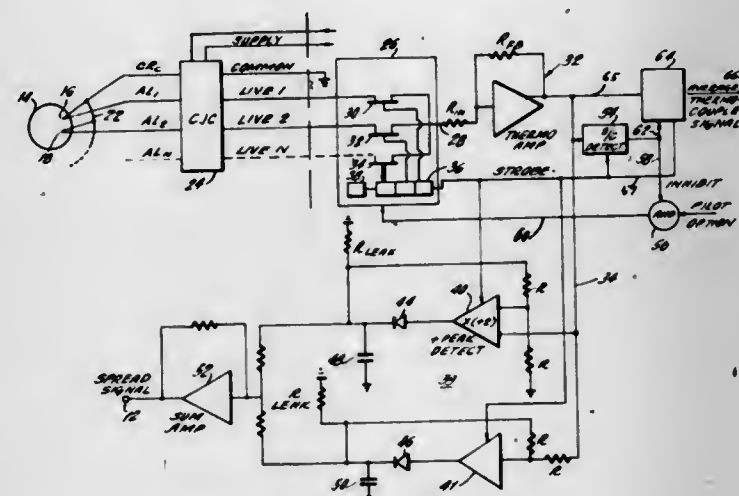
Kenneth R. Curwen, Shirley, Southampton, England, assignor to Kollsman Instrument Corporation, Syosset, N.Y.
Filed Feb. 24, 1969, Ser. No. 801,730
Int. Cl. G01m 15/00

U.S. Cl. 73-116

5 Claims

A temperature spread detector for detecting a difference in temperature at various areas of a machine, such as a jet

engine. The spread detector includes thermocouples for establishing signals representative of the temperature at various points, which signals are then converted to a sequential waveform by multiplexing means with such waveform



being fed to minimum and maximum detectors which produce minimum and maximum values which, when accumulated in a summing amplifier, will produce a signal representative of temperature spread.

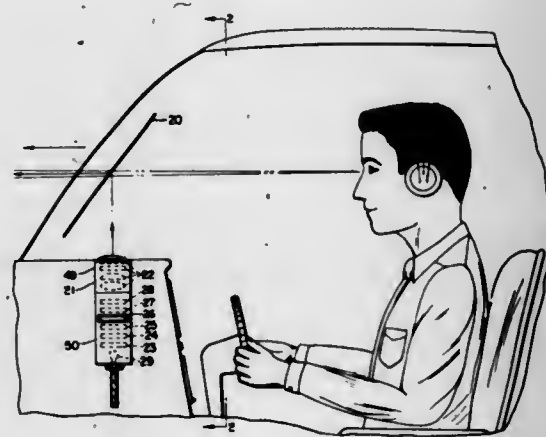
3,574,283

A NUMERIC COLLIMATED DISPLAY INCLUDING MEANS FOR PROJECTING ELEVATION, ATTITUDE AND SPEED INFORMATION

William R. Albers, 3615 Libo Place, Fairfax, Va. 22030
Filed Dec. 27, 1967, Ser. No. 693,779
Int. Cl. G02b 23/10, 27/14; G01c 21/00

U.S. Cl. 73-178

5 Claims



A simulated visual reference collimated heads-up display system for aircraft pilots arranged in the pilot's normal line of sight through the windshield and utilizing the established basic theories and principals of flight enabling a pilot, even an inexperienced pilot, to fly safely and with precision, maintaining good air speed and attitude control in clear visual reference flying weather or in instrument or marginal weather conditions. The system employs reticle plate images projected on a screen disposed in the pilot's normal line of vision and comprising a horizon line image slaved to the aircraft's gyro horizon instrument; an attitude circle image fixedly related to the vertical centerline of the screen for selective positioning along the vertical centerline of the screen to depict the optimum nose attitude of the aircraft to be maintained for a selected mode of flight; a small airplane image fixedly related to the display screen and to the aircraft to depict the instantaneous pitch and bank attitudes and heading of the aircraft during all phases of flight including the takeoff and landing runs of the aircraft so the pilot can center the small airplane image in the attitude circle to establish the optimum nose attitude of the aircraft during any selected mode of flight; air speed and vertical speed line images pivoted to swing up and down about the ends of the

ERRATUM

For Class 74-5.34 see:
Patent No. 3,575,093

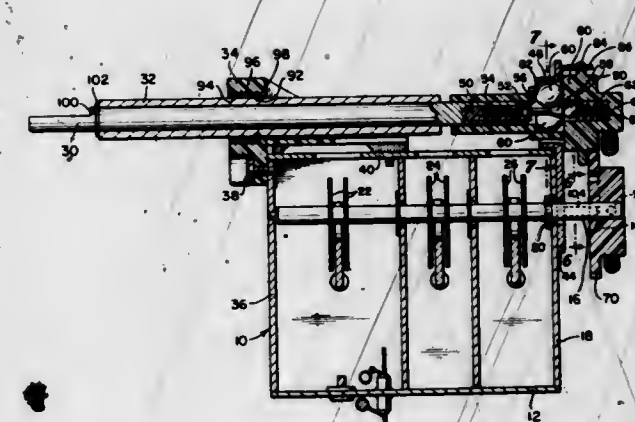
3,574,285

UHF TUNER DRIVE MECHANISM

Alarico A. Valdetaro, and Joe G. Badger, Bloomington, Ind.,
assignors to Sarkes Tarzian, Inc., Bloomington, Ind.
Filed Apr. 14, 1969, Ser. No. 815,898
Int. Cl. F16h 35/18

U.S. Cl. 74-10.52

8 Claims



The control shaft and dial indicator shaft of the UHF tuner are mounted in bearings positioned on opposite ends of the tuner housing. The rear bearing comprises a ball-planetary speed reduction unit which is electrically isolated from both shafts. A high viscosity lubricant is employed between shafts and in the front bearing to provide a shaft-mounting arrangement which has the feel of a precision bearing.

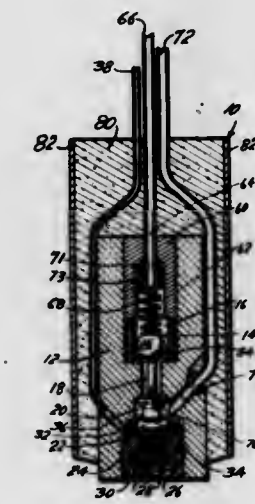
3,574,284

PORE PRESSURE APPARATUS AND METHOD

Petur Thordarson, Kefavik, Iceland, assignor to Laucks Laboratories, Inc., Redmond, Wash.
Filed June 26, 1967, Ser. No. 648,824
Int. Cl. G01i 7/08

U.S. Cl. 73-406

5 Claims



This invention is for a method and an apparatus for determining the pore pressure of liquid in the ground and earth structures. This invention makes it possible to determine the pore pressure at various depths in the ground and earth structure. The apparatus can be positioned at the desired depth in the ground or earth structure and the pore pressure determined. The apparatus comprises means for increasing the pressure so as to counteract the pore pressure in the ground. Also, there is a control unit for measuring the pressure. More particularly, there is a diaphragm and a valve means. The valve means connects with the diaphragm. The pore pressure against the diaphragm is counteracted by the pressure from the control means. When the valve means is closed, the pressure is indicated and does not change. It is possible then to know the pore pressure in the ground.

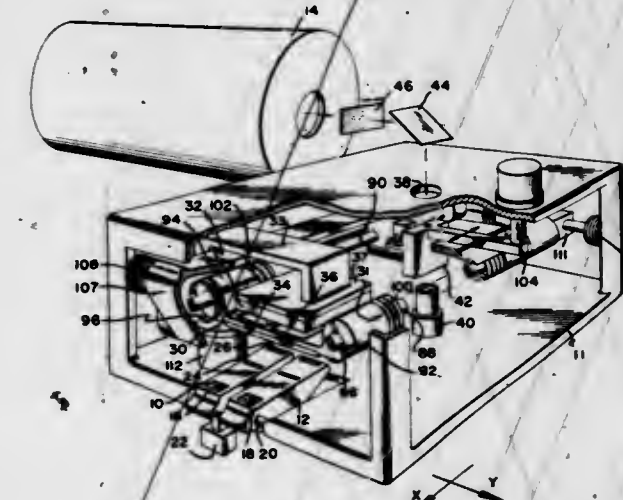
3,574,286

MATERIAL HANDLING DEVICE

T. O. Paine, Administrator of the National Aeronautics and Space Administration with respect to an invention of, and G. Ritchie Douglas, Los Angeles, Calif.
Original application Jan. 24, 1968, Ser. No. 700,120, now Patent No. 3,472,372. Divided and this application Oct. 6, 1969, Ser. No. 863,967
Int. Cl. F16j 15/52

U.S. Cl. 74-18.2

3 Claims



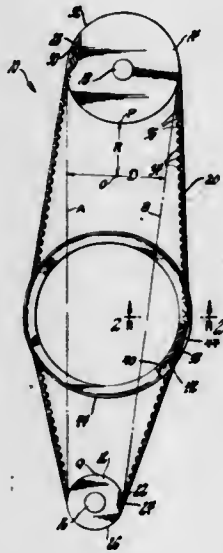
A stage which is supported on a nut that moves along a rotating threaded rod, wherein the nut and rod are sealed against a vacuum or other adverse environment. A pair of bellows is employed to hermetically seal the rod, a first of the bellows extending between the nut and a first end of the rod, and a second of the bellows extending between the nut and a second end of the rod. As the nut and stage thereon move toward the first end of the rod, the first bellows collapses while the second bellows expands, and visa versa.

3,574,287

BELT TENSION-ADJUSTING DEVICE

Walter C. Heidacker, Bloomfield Hills, Mich., assignor to General Motors Corporation, Detroit, Mich.
Filed Sept. 19, 1969, Ser. No. 859,365
Int. Cl. F16h 7/12; F16g 1/28
U.S. Cl. 74-242.1

9 Claims



A belt-tension-adjusting device for a toothed belt and dual pulley drive arrangement, including an intermediate toothed pulley or sprocket wheel having an outside diameter larger than the respective diameters of the two pulleys, wherein the belt may be tensioned by manually holding one side of the belt away from the intermediate pulley, rotating the latter toward one of said dual pulleys, and releasing the side of the toothed belt to mesh with the teeth of the intermediate pulley in its new location.

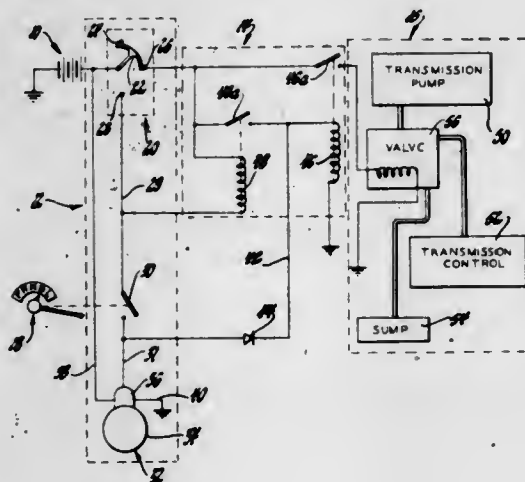
3,574,288

TRANSMISSION DISABLING APPARATUS

Wallace E. Barth, Birmingham, and William E. Bell, Berkley, Mich., assignors to General Motors Corporation, Detroit, Mich.

Filed Oct. 2, 1969, Ser. No. 863,290
Int. Cl. B60k 27/02, 27/08; F02n 1/110
U.S. Cl. 74-850

3 Claims



An automatic transmission in a vehicle is provided with a solenoid valve for dropping transmission fluid pressure. A relay circuit in conjunction with a conventional engine starting circuit actuates the solenoid valve to disable the transmission during the engine starting period.

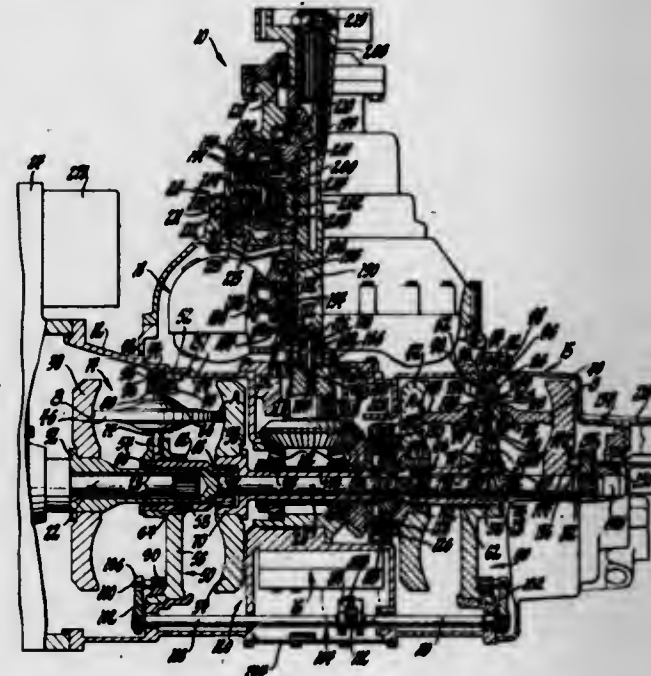
3,574,289

TRANSMISSION AND CONTROL SYSTEM

Milton H. Scheiter, Bloomfield Hills, and Frank Dickenbrock, Warren, Mich., assignors to General Motors Corporation, Detroit, Mich.

Filed May 6, 1969, Ser. No. 822,122
Int. Cl. B60k 21/10; F16h 37/06
U.S. Cl. 74-864

20 Claims



A friction roller transmission including a prime mover, shaft means driven thereby, a pair of input races secured to the shaft means, a pair of output races secured to output shaft means, a set of rollers frictionally rotatable and tiltable between each set of input and output races for permitting continuously variable output/input speed ratios, hydraulic control means for automatically changing the tilt position of the rollers in order to select desired speed ratios in response to three variable input parameters, differential means for averaging speed differences between toric sections as received from the output shaft means, gear means for transferring the rotary output from the differential means to a fluid torque converter, first clutch means for connecting a final output shaft to the converter for forward vehicle operation, and second clutch means for connecting the final output shaft to the converter for reverse vehicle operation.

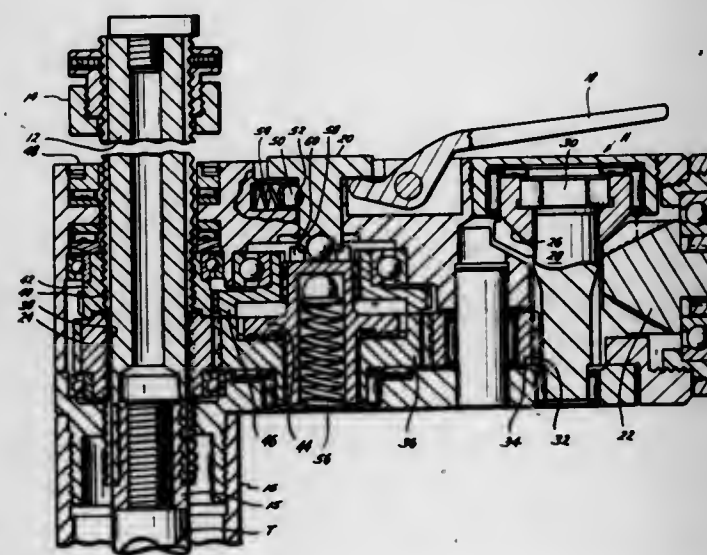
3,574,290

TOOL ACTUATING DEVICE

Richard E. Eckman, Houston, Tex., assignor to Dresser Industries, Inc., Dallas, Tex.

Filed Dec. 16, 1968, Ser. No. 783,824
Int. Cl. B23b 45/14, 47/18
U.S. Cl. 77-32.5

13 Claims



A tool actuating device to control both the speed and feed of the tool and to provide a preselected short period of time

in which the tool dwells at its outermost extension before which may be incapable of dimensional or velocity automatically being retracted. predictability.

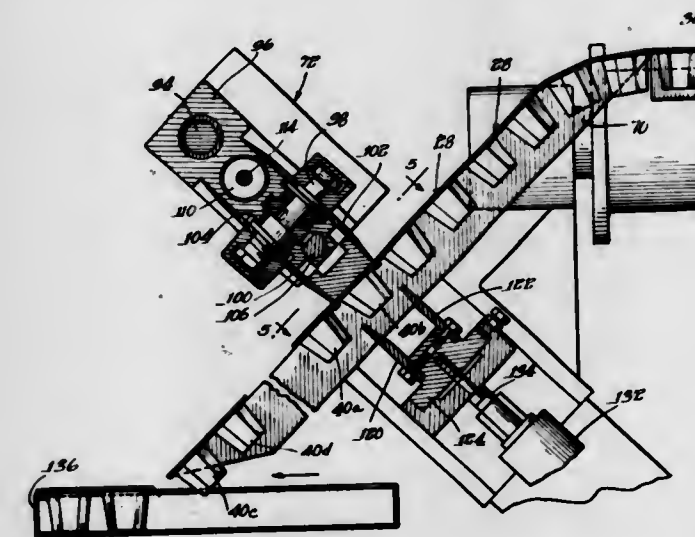
3,574,291

PACKAGING APPARATUS

Guenter K. Rosendahl, Arlington Heights, Ill., assignor to Illinois Tool Works, Inc., Chicago, Ill.
Filed Sept. 26, 1968, Ser. No. 762,921
Int. Cl. B26d 7/14

U.S. Cl. 83-175

7 Claims U.S. Cl. 92-84



There is disclosed an apparatus for feeding interconnected packages along a path of travel, and guide means for directing the packages downwardly from said path of travel in a manner such that gravity causes the leading packages to move down the guide means and pull the following packages onto the guide means. A cutting mechanism is positioned adjacent the guide means for severing successive packages from the row while leaving sufficient interconnected packages on the guide means to maintain the desired pull on the following packages.

3,574,292

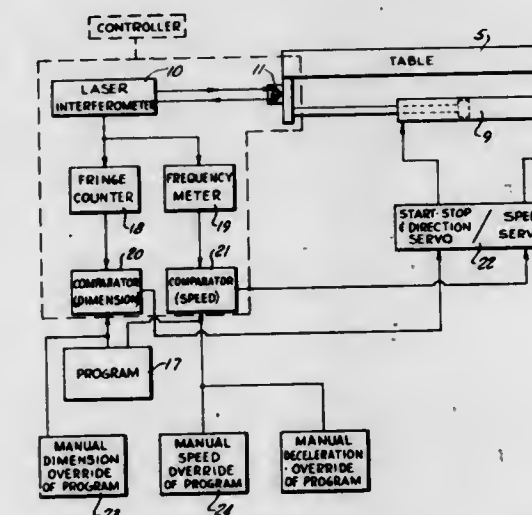
INTERFEROMETER MOTION AND VELOCITY CONTROLLER

Gene A. Butts, Escondido, Calif., assignor to DoAll Company, Des Plaines, Ill.

Filed Aug. 21, 1969, Ser. No. 851,990
Int. Cl. F15b 21/02

U.S. Cl. 91-37

5 Claims



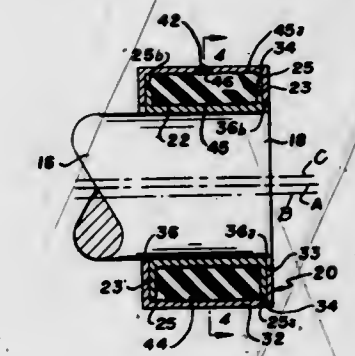
An interferometer measuring system which constitutes means of measuring the magnitude and velocity of relative motion between two parts along a defined path, coacts with numerical command reference data to effect and control relative motion between the parts produced by drive means

3,574,293

ANTI-KNOCK BEARING DEVICE

Joseph A. Vriend, Box 505, Squamish, British Columbia, Canada
Filed Nov. 5, 1968, Ser. No. 773,459
Int. Cl. F16j 1/16

3 Claims



A device having normally concentric sleeves and a resilient insert nonrotatably mounted between the sleeves, the sleeves having end flanges shaped to restrict and limit relative radial movement of the sleeves to compress and release the insert.

3,574,294

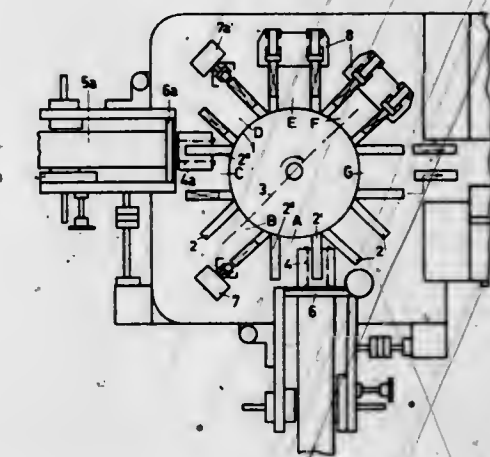
DEVICE FOR MAKING CONTAINERS

Alwin Egli, Dachsen, Switzerland, assignor to Schweizerische Industrie-Gesellschaft

Filed Aug. 14, 1969, Ser. No. 850,020
Int. Cl. B31b 1/02

U.S. Cl. 93-44.1

2 Claims



The mandrel wheel carries a series of parallel pairs of folding mandrels, each mandrel of a pair cooperating with a respective station, positioned 90° apart, having a folding chamber.

3,574,295

DEVICE FOR TAKING STEREOSCOPIC PHOTOGRAPH IN A STEREOSCOPIC MICROSCOPE

Toshio Tasaki, Tokyo, Japan, assignor to Olympus Optical Co., Ltd., Tokyo, Japan

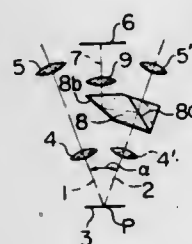
Filed June 20, 1969, Ser. No. 835,038
Claims priority, application Japan, June 29, 1968, 43/44,934
Int. Cl. G03b 35/08

U.S. Cl. 95-18

8 Claims

A device for taking stereoscopic photographs in a stereoscopic microscope having optical axes with a parallax angle formed therebetween for stereoscopic observation of the object. The device comprises a camera body loaded with a film and an optical path switching means rotatably mounted in the microscope so as to permit same to alternately assume first and second positions in which light

from the object is directed to the camera body from the two respective optical axes. A stereoscopic photograph is obtained by successively exposing the film at the first and second positions of the path switching means.



The camera body may comprise a pair of optical axes parallel to each other for simultaneously taking photographs of the object by the light coming from each of the two optical axes of the microscope.

3,574,296 CASSETTE FOR ROLLFILM CAMERAS

Claus Prochnow, and Kurt Bode, Braunschweig, Germany, assignors to Rollei-Werke Franke & Heidecke, Braunschweig, Germany

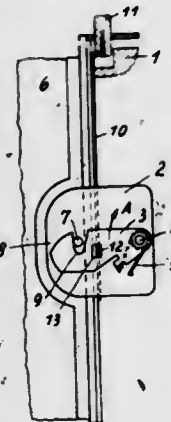
Filed Sept. 23, 1968, Ser. No. 762,675

Claims priority, application Germany, Sept. 23, 1967,

P 12 74 439.7
Int. Cl. G03b 19/04

U.S. Cl. 95-31

8 Claims



A rollfilm cassette for detachable mounting on the body portion of a camera. The cassette has a protective slide to be inserted in the cassette before removal from the camera, to prevent fogging of the film when the cassette is removed. An interlock responsive to the presence or absence of the protective slide prevents the release of the latch which unlatches the cassette from the camera body, unless the protective slide is properly inserted in the cassette. The cassette has a hollow backwall providing a chamber in which to keep the protective slide when the slide is removed from its protecting position so that exposures can be made on the film.

3,574,297 OFFSET PRINTING WITH ALKENYLSUCCINIC ACID COMPOUND

Keith B. Bozer, Midland, Mich., assignor to The Dow Chemical Company, Midland, Mich.

Filed Mar. 3, 1969, Ser. No. 804,001

Int. Cl. B41m 1/00, 3/00, 5/00

U.S. Cl. 101-451

5 Claims

Paper characterized by insoluble basic surface properties is rendered selectively printing-ink receptive by application of alkenylsuccinic acid, its anhydride, or its soluble salt.

3,574,298 FIRING DEVICE, METHOD, AND SYSTEM, FOR SEISMIC EXPLORATION

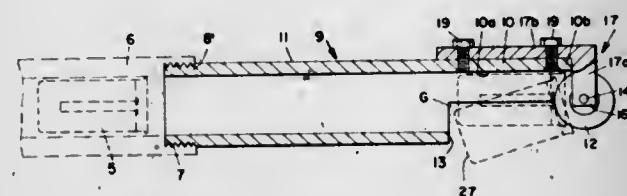
Richard R. Larson, Ulster Park, N.Y., assignor to Hercules, Incorporated, Wilmington, Del.

Filed Apr. 21, 1969, Ser. No. 818,475

Int. Cl. F42d 3/06

U.S. Cl. 102-22

29 Claims



The invention provides:

1. a firing device for underwater seismic shooting small delay-type percussion-initiatable charge assemblies including (a) means for sequentially conveying such charge assemblies into, or along, a path of forward travel for percussion initiation, (b) means in said path of travel for interception-contact, while in a stationary position, with the forwardly moving charge assemblies to cause percussion initiation of same by resulting impact, and (c) means for directing the thus-initiated charge assemblies, during the delay period, from the system for subsequent detonation;

2. an underwater seismic exploration method including the steps of (a) sequentially conveying such delay-type charge assemblies into or along the above said path of travel, (b) sequentially impacting said assemblies during their travel to provide the percussion initiation, and (c) during the delay period, sequentially directing travel of the thus-initiated charge assemblies away from the zone of percussion initiation into an adjacent underwater area for detonation; and

3. a system for generating seismic disturbances in an underwater zone including (a) a movable platform, such as a boat deck, (b) a firing device, above described, as a submersed firing station, and (c) means for delivering such charge assemblies under force of fluid pressure from the boat deck to the firing station, including a delivery conduit and pressure generation means therefor.

3,574,299 CHAIR LIFT GUIDE

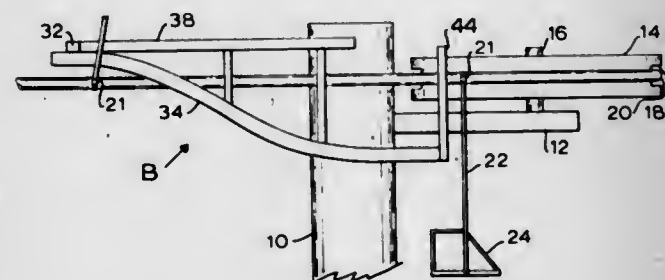
Robert A. Oswald, P.O. Box 458, Gardnerville, Nev. 89410

Filed Mar. 10, 1969, Ser. No. 805,697

Int. Cl. B61b 13/02

U.S. Cl. 104-173

6 Claims



A stationary chair lift attachment for positively guiding successive chair supporting structures into predetermined alignment with a rotating bull wheel as the portion of a cable to which the chair supporting structure is attached approaches and is advanced tangentially around the bull wheel.

3,574,300 CRASH-RESISTANT, WATER-TRAVERSING, FLUIDFOIL VEHICLE

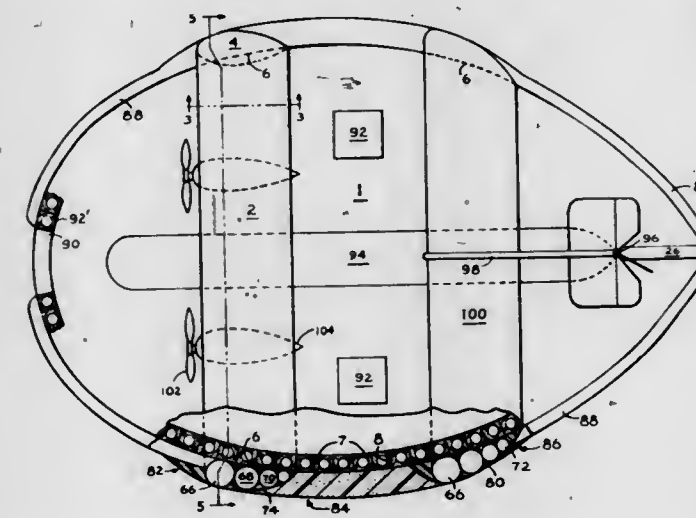
Alvin Edward Moore, 916 Beach Blvd., Waveland, Miss.

Filed Mar. 3, 1969, Ser. No. 803,672

Int. Cl. B63b 1/20

U.S. Cl. 114-66.5

15 Claims U.S. Cl. 122-7



A wreck-resistant, lightweight vehicle, adapted to traverse water and optionally to travel also in air or space, comprising: a barrel-curved, preferably rigid-walled cabin; resilient fluid-dynamic foils or wings above and spaced from the cabin; fluid-dynamic foils below and spaced from the cabin (serving in travel thru water as hydrofoils that lift the cabin clear of the water's surface); resilient fluidfoil supports, strongly connecting the ends of each pair of the upper and lower fluidfoils, fitted and bonded to the vertical curves of the cabin sidewalls; and, optionally and preferably, vehicle-stabilizing balloon means, comprising a series of balloon bags in a streamlined skin, fitted between and bonded to the top of the cabin and each upper fluidfoil. The invention includes lightweight, strong, cabin-wall, endless ribs, comprising curved, thin-walled tubes that are strongly inflated with gaseous material and surrounded by integral, strong insulation which comprises substantially rigid foamed plastic, or very lightweight concrete, or similar material. The ribs are epoxy bonded together in a fore-and-aft series, and sheathed in a waterproofed skin.

3,574,301 DEVELOPING APPARATUS

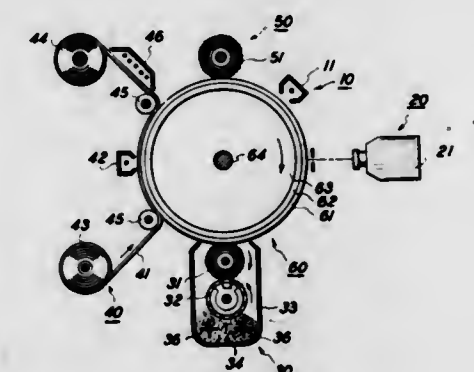
John S. Bernhard, Pittsford, N.Y., assignor to Xerox Corporation, Rochester, N.Y.

Filed Apr. 2, 1969, Ser. No. 812,798

Int. Cl. G03g 13/08

U.S. Cl. 118-637

6 Claims



An apparatus for developing an electrostatic image on an insulating plate with toner particles including a brushlike developing member, means to generate a cloud of toner particles, a conductive donor member, and means to selectively place electrical biases on the donor member.

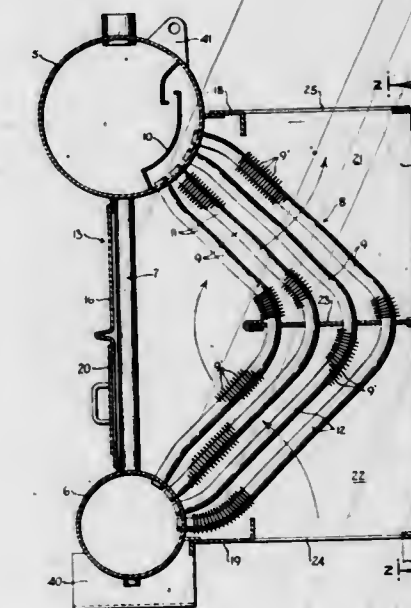
3,574,302 WASTE HEAT WATER TUBE BOILER

Denis G. Csaty, Minneapolis, Minn., assignor to Raygo, Inc., Minneapolis, Minn.

Filed Dec. 4, 1969, Ser. No. 882,196

Int. Cl. F22b 1/18

6 Claims



A water tube boiler with vertically spaced parallel steam and mud drums connected by vertical downcomer tubes and an angle shaped bank of heating tubes, the downcomer tubes and the angle shaped bank of heating tubes defining a triangle, and a boxlike casing enclosing all of the heating tubes with one upright wall thereof closely adjacent to the downcomer tubes and the opposite upright wall closely adjacent to the apex of the angle shaped bank and having a baffle wall joined thereto, which baffle wall bisects the angle defined by the bank of heating tubes but is spaced from the casing wall which is adjacent to the downcomer tubes, so that hot gases entering the casing at one side of the baffle wall and leaving the casing at the other side thereof must flow successively through the two angularly disposed legs of the bank of heating tubes.

3,574,303 MOISTURE SEPARATOR REHEATER FOR PRESSURIZED VAPOR

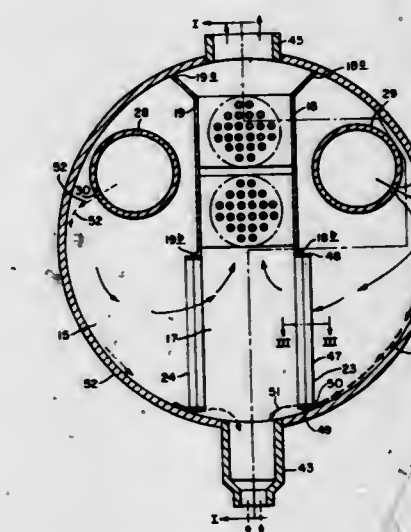
Thomas J. Rabas, Broomall, Pa., assignor to Westinghouse Electric Corporation, Pittsburgh, Pa.

Filed Sept. 30, 1968, Ser. No. 763,885

Int. Cl. F22g 5/16; F22b 37/26

U.S. Cl. 122-483

16 Claims



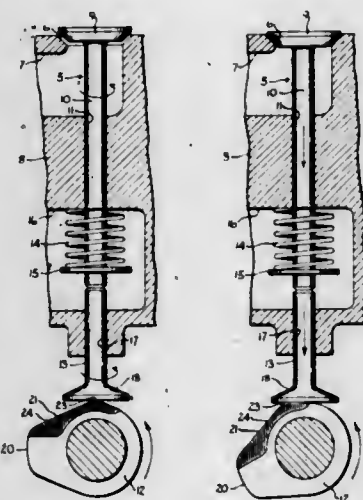
This invention provides an improved unitary device for removing moisture from moisture-laden vapor in a highly

pressurized state and heating the demisterized vapor to a dry and/or superheated state, in which an axially elongated casing (closed at its ends) is divided into a pair of oppositely disposed and axially extending moisture-laden vapor collection chambers into which the incoming moisture-laden vapor (such as motive steam for a steam turbine) is individually distributed in a uniform manner by a longitudinally elongated manifold disposed in each chamber, and a centrally disposed and axially extending moisture-free vapor collection chamber wherein the demisterized vapor is heated and then delivered from the casing. The chambers are defined, in part, by a pair of plate-type moisture separators also extending in axial direction from end to end of the casing and providing a flow path from the moisture-laden vapor collection space to the moisture-free vapor collection chamber.

3,574,304

GASOLINE ENGINE EXHAUST VALVE ROTATOR

John D. Santi, West Allis, Wis., assignor to Briggs & Stratton Corporation, Wauwatosa, Wis.
Filed Mar. 10, 1969, Ser. No. 805,416
Int. Cl. F011 1/32; F16k 29/00; F011 1/08
U.S. Cl. 123-90.28 3 Claims



The cam for the exhaust valve has a small lobe that momentarily interrupts closing motion of the valve just before it seats, so that the valve slips rotationally relative to its spring under rotational inertia built up during the preceding part of closing motion and induced by rotation of the moving end of the spring. The profiled cam surface is recessed in the neighborhood of said lobe to engage the tappet only at one side of its axis and thus encourage rotation.

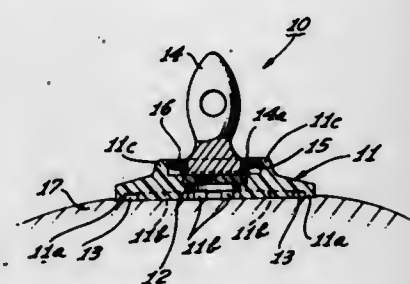
3,574,305

ELECTRODE SERVING FOR THE DETECTION OF ELECTROPHYSIOLOGICAL POTENTIALS OR CURRENTS

Gerhard L. Muhl, Freiburg im Breisgau, Germany, assignor to Fritz Hellige & Co., G.m.b.H., Freiburg im Breisgau, Germany
Filed Sept. 5, 1968, Ser. No. 757,619
Claims priority, application Germany, Sept. 9, 1967, P 15 66 089.6
Int. Cl. A61b 5/04 7 Claims

A diagnostic device for facilitating the measurement of electrophysiological potentials or currents. An electrode of sintered construction and of disc configuration is retained within a holding member of the diagnostic device. The electrode is a mixture of silver powder and silver salt at

defined ratios, and the silver salt being within a preferred solubility level. The holding member has a plurality of radial ribs adapted to provide free space wherein an electrolytically conductive paste may be placed so as to prevent direct

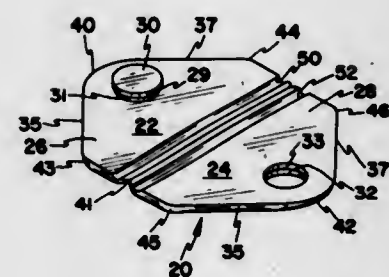


contact between the electrode and the skin surface of the patient.

3,574,306

NEEDLE PROTECTOR

James David Alden, Salt Lake City, Utah, assignor to Deseret Pharmaceutical Company, Inc.
Filed Jan. 13, 1969, Ser. No. 790,703
Int. Cl. A61m 5/00
U.S. Cl. 128-214.4 2 Claims



A needle protector defining a unitary entirely planar needle cover including planar wings of essentially uniform thickness molded with a reduced thickness bisecting fold line, each wing containing a semicylindrical parallel groove for circumscribing and binding against a needle which circumscribes an indwelling catheter tube, the sharpened tip of the needle being confined between the wings within the parallel grooves when the protector is folded together and permanently fastened in the folded position by a male-female union whereby the folded protector defines a continuously smooth exterior. Consequently, risks of personal injury to the patient and damage to the catheter are alleviated.

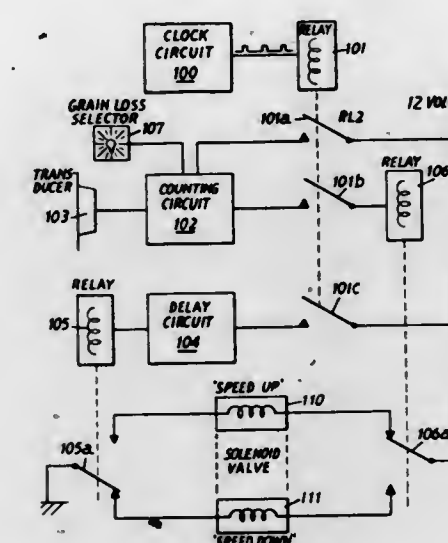
3,574,307

COMBINE HARVESTERS

Peter Reginald Theobald, Ipswich, England, assignor to Ransomes Sims & Jefferies Limited, Ipswich, Suffolk, England
Filed Sept. 30, 1969, Ser. No. 862,366
Claims priority, application Great Britain, Oct. 4, 1968, 47145
Int. Cl. A01f 12/00 7 Claims

Apparatus for controlling the forward speed of a combine harvester in dependence upon grain loss at a selected location in the harvester comprises an electronic clock circuit, a delay circuit and a counting circuit, the latter having transducer means which provide pulses representative of a measure of grain loss and the arrangement being such

that at a predetermined time in each clock pulse, if the counting level is other than a predetermined value the for-

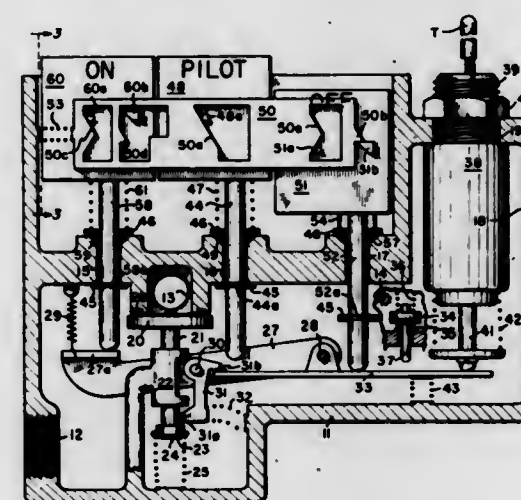


ward speed of the harvester is increased or decreased to control the level of grain loss from the harvester.

3,574,308

MANUALLY RESET SAFETY CONTROL

Robert J. Battersby, Lomita, Calif., assignor to Honeywell Inc., Minneapolis, Minn.
Filed Mar. 7, 1969, Ser. No. 805,162
Int. Cl. F23d 13/46 7 Claims



A 100 percent safety shutoff gas valve comprising a biased closed main valve, a biased closed pilot valve, a thermoelectric power unit for holding the valves open but incapable of opening them and a plurality of pushbutton actuators that are sequentially actuated to first open the pilot valve and reset the power unit for energization by a pilot burner heated thermocouple and, thereafter, actuate another pushbutton to open the main valve. The valves are adapted to be closed either by the occurrence of a pilot burner flame failure, which deenergizes the magnet, or by depressing a third button to directly close the pilot valve and indirectly close the main valve by tripping a latching mechanism. The pushbuttons have an interlock arrangement whereby depressing of one pushbutton causes retraction of a previously actuated pushbutton.

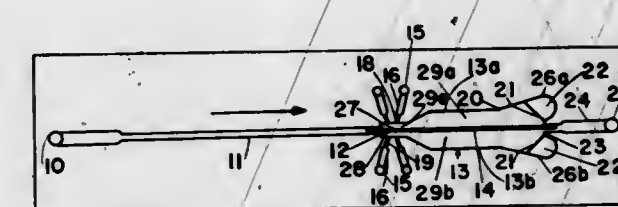
3,574,309

CHAMBERED FLUIDIC AMPLIFIER

Hans-Dieter Kinner, Attleboro, Mass., assignor to The Foxboro Company, Foxboro, Mass.
Continuation-in-part of application Ser. No. 662,273, Aug. 18, 1967, now abandoned. This application June 28, 1968, Ser. No. 741,018
Int. Cl. F15c 1/18 3 Claims

A supply tube projects fluid flow into a chamber closely surrounding but not contacting the projected flow in its

laminar state; the chamber has at least one wall narrowly spaced from the path of the projected laminar supply stream, and at least one wall sufficiently spaced from this path to permit reverse circulation in the chamber; the application of a control flow transversely against the projected laminar flow



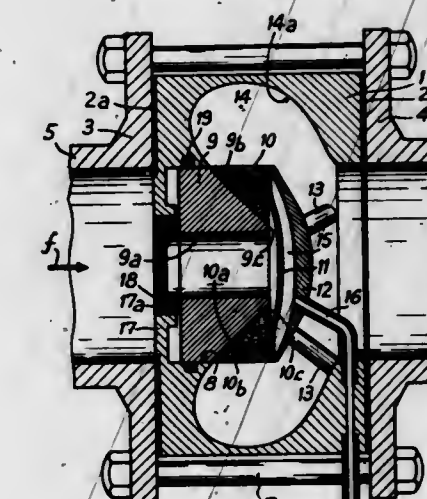
causes a disruption thereof with interaction of the projected disrupted flow with the chamber walls; a receiver axially aligned with the supply tube senses the effects of control flow upon the supply flow, the switching between controlled and uncontrolled states being enhanced by the interaction between the supply flow and the confining chamber.

3,574,310

PRESSURE REDUCER FOR GASEOUS FLUIDS

Daniel S. Souriau, Paris, France, assignor to Service National dit: Gaz De France, Paris, France
Filed Oct. 21, 1969, Ser. No. 868,171
Claims priority, application France, Oct. 23, 1968, 171014
Int. Cl. F16k 7/17 9 Claims

U.S. Cl. 137-625.3



A pressure reducer for gaseous fluids in which a porous body is located in a casing with one of its surfaces in fluidtight contact with a support member. The porosity of the member in a direction joining the upstream and of said body to said one surface being large and the porosity in a direction between said one surface and the downstream end of the body being poor. A pneumatically or hydraulically operated membrane controls the flow of gas to the upstream end.

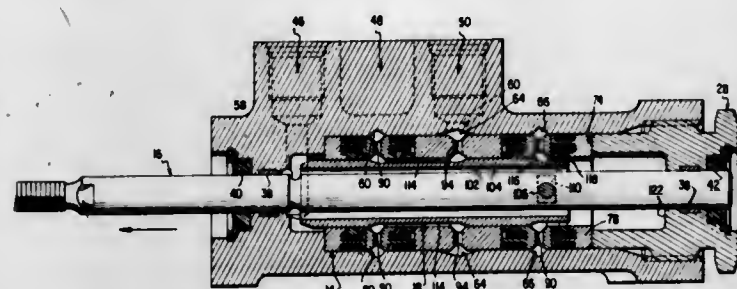
3,574,311

SPOOL VALVE

Gordon J. Fairbanks, Indianapolis, Ind., assignor to Stewart Warner Corporation, Chicago, Ill.
Filed Mar. 5, 1969, Ser. No. 804,417
Int. Cl. F16k 11/07 3 Claims

A spool valve in the form of a hollow cylinder of larger internal diameter than that of the operating shaft receiving

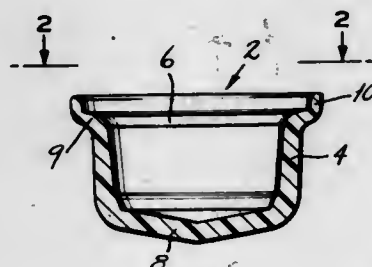
the same, floats on one or more pins extending radially from the shaft periphery to allow the floating spool to be self-



centered with respect to the cylindrical valve casing encircling the same.

3,574,312 CLOSURE

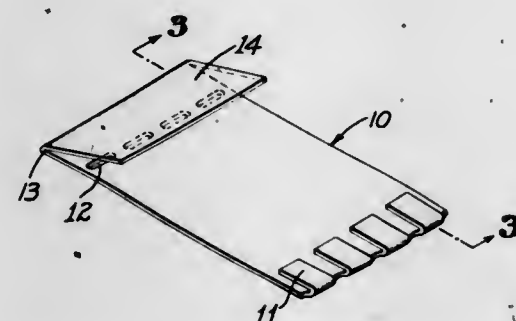
Joseph T. Miller, St. Louis, Mo., assignor to Sinclair & Rush Inc., St. Louis, Mo.
Filed Feb. 25, 1969, Ser. No. 802,131
Int. Cl. F16I 57/00; B65d 59/06
U.S. Cl. 138-96 1 Claim



A closure formed from a material of relatively high flexibility and elasticity and having a sidewall defining a socket which is closed at one end by an integrally formed end wall. The closure may be utilized either as a plug for insertion in bores or cavities or as a cap for installation over the ends of pipes or rodlike objects.

3,574,313

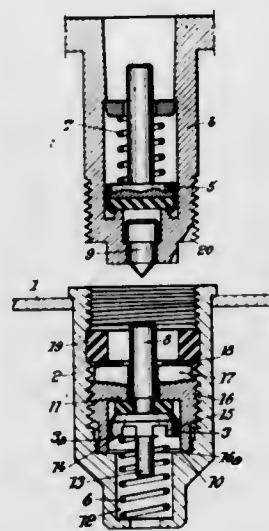
WRAPAROUND CLOSURE SLEEVE
Ken Tanaka, San Jose, Calif., assignor to Raychem Corporation, Menlo Park, Calif.
Filed Oct. 30, 1968, Ser. No. 771,818
Int. Cl. F16I 25/00
U.S. Cl. 138-99 7 Claims



A closure sleeve for pipes or the like constructed from a piece of independently dimensionally heat unstable material, that is, material which will return to its original shape and dimensions upon application of heat alone. The sleeve is split and provided along one edge with a plurality of preshrunk tabs which are folded back over the sleeve. A plurality of corresponding slots are formed adjacent the other edge of the sleeve and the material of the other edge folded back over the slots. To install the closure member, the piece of material is rolled into tubular form and the tabs inserted into the slots and the part then heat recovered.

3,574,314 COUPLING FOR CONNECTING A RECHARGEABLE RESERVOIR WITH A PRESSURIZED RECHARGING TANK

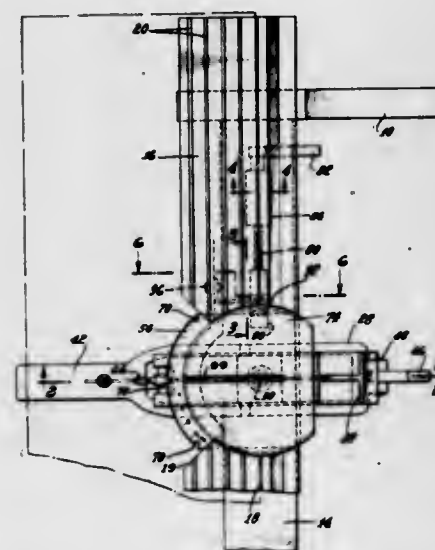
Roger Charles Quercia, Paris, France, assignor to Flaminaire Marcel Quercia, Paris, France
Filed Jan. 3, 1969, Ser. No. 788,827
Claims priority, application France, Jan. 9, 1968, 135,392
Int. Cl. B65b 1/04
U.S. Cl. 141-349 1 Claim



A coupling for connecting a gas lighter reservoir to a high-pressure refill tank comprises a first coupling member fitted to the lighter reservoir and providing a screw-threaded socket to receive a screw-threaded spigot on a second coupling member of the refill tank. Both coupling members have check valves urged into their closed positions by a compression spring, the compression spring in the first coupling member being weaker than that in the second coupling member and the valve members of the check valves being provided with means acting between the members when the coupling members are screwed together to displace the first valve member, in the first coupling member and subsequently the valve member in the second coupling member from their respective seats. An abutment is provided in the first coupling member which engages the respective coupling member before its compression spring is compressed sufficiently to cause permanent deformation to the valve member in the second coupling member being displaced after the valve member in the first coupling member has engaged said abutment.

3,574,315

ADJUSTABLE MITRE SAW
Ace C. Boultinghouse, Northridge, Calif., assignor to B & E Products Inc., Los Angeles, Calif.
Filed Nov. 4, 1968, Ser. No. 773,123
Int. Cl. B27b 5/20
U.S. Cl. 143-6 4 Claims

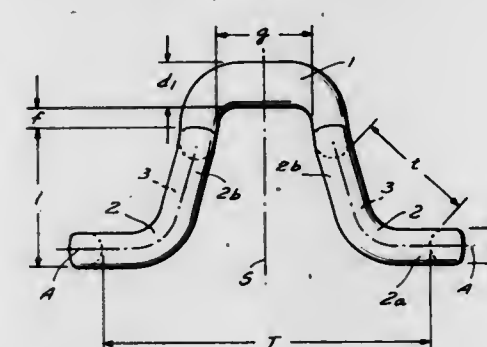


A power-driven saw is described which performs mitre cuts and which is adjustable to the angle of cut desired. A

turntable is included in which the power-driven saw is pivotally mounted thereto by a spindle. A counterbalance arm is pivoted above a work support and is capable of clearing the saw from the work being cut. A brake shoe is mounted on the work support which can be engaged to press upon a circular flange mounted on the turntable for locking the saw at a desired angle.

3,574,316 MAIL MESH

Walter Siepmann; Walter Siepmann, Jr., Haus Mohnetal; Hans-Jurgen Vogt, Kulbe 21, 4785 Beleecke, Mohn, and Herbert Sobota, Unterm Hagen 2, Warstein, Sauerl, Germany
Filed Dec. 26, 1968, Ser. No. 786,922
Claims priority, application Germany, Apr. 19, 1968, P 17 55 270.4
Int. Cl. B60c 27/06
U.S. Cl. 152-231 18 Claims



A protective mail mesh, which is particularly suitable for protecting vehicle tires, comprises a plurality of one-piece members each having at least two closed loop portions and a connecting portion connecting the same. Each loop portion has an opening which is so dimensioned as to permit sliding insertion of a loop portion of another of the members only when the loop portions of the respective members have a predetermined orientation with reference to one another. Each loop portion has two integral sections one of which is closer to and the other of which is farther from the associated connecting portion and the general planes of at least the other sections of the loop portions are at least substantially coincident with one another. Each connecting portion of each of the members extends through and is at least in part slidably accommodated in a loop portion of at least one other of the members whereby all of them are connected movable with reference to each other and together constitute a mail mesh.

3,574,317

PUNCTUREPROOF PNEUMATIC TIRE
Howell K. Brewer, Fairborn, Ohio (333 N. Longview St., Dayton, Ohio 45432)
Filed Apr. 18, 1969, Ser. No. 817,502
Int. Cl. B60c 17/00
U.S. Cl. 152-313 6 Claims

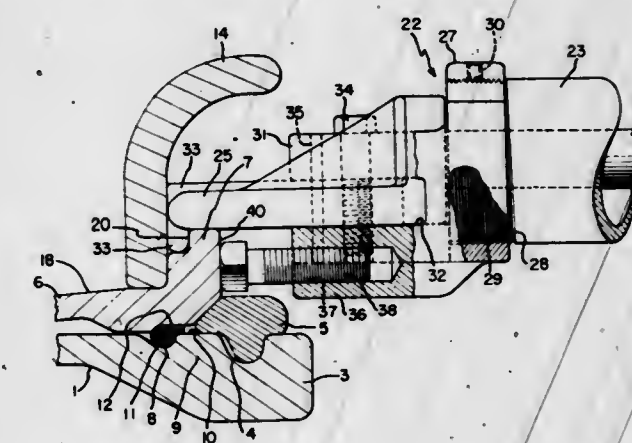


A punctureproof tubeless, or tube-type pneumatic tire equipped with a series of resilient sacs inflated with gas under pressure, and consisting of individually sealed sac elements fabricated with thin elastic or plastic sheet material conformable with the inner casing and/or tube structure. This

sac element arrangement is placed in the usual main compressed gas space of the tire casing, or inner tube and automatically resists any deformation of the casing resulting from a puncture thereof.

3,574,318 WHEEL RIM AND TIRE-BEAD-LOOSENING TOOL THEREFOR

Gerhart L. Gerbeth, and Harold A. Bunts, Akron, Ohio, assignors to The Goodyear Tire & Rubber Company, Akron, Ohio
Filed Aug. 20, 1969, Ser. No. 851,684
Int. Cl. B60c 25/06
U.S. Cl. 157-1.17 4 Claims



A tire-bead-loosening tool in combination with a wheel rim having a specially designed offset on the side ring retaining flange for receiving attachment hooks of the loosening tool.

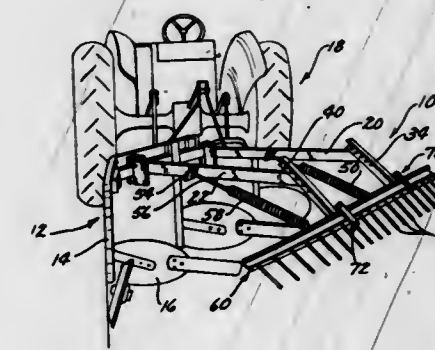
3,574,319

PARAFFIN CONTROL METHOD
Charles E. Morgenthaler, Casper, Wyo., assignor to Tenneco Oil Company, Houston, Tex.
Filed Dec. 30, 1969, Ser. No. 889,327
Int. Cl. E21b 43/00, 43/28
U.S. Cl. 166-304 8 Claims

A method for controlling paraffin deposition in an oil production system and includes injecting an asphaltic crude oil into paraffin base crude oil production and storage facilities. The invention includes the steps of mixing the asphaltic crude oil with the paraffin base crude oil and producing the paraffin base oil to the surface.

3,574,320

MULCHER BAR ASSEMBLY
Donald F. Sigmund, Anamosa, Iowa 52205
Filed May 15, 1969, Ser. No. 824,846
Int. Cl. A01b 49/02, 23/04
U.S. Cl. 172-202 7 Claims



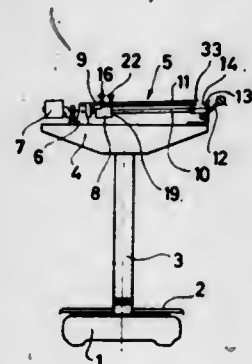
A mulcher bar assembly adapted for use with a plow and designed to trail the plow to mulch the freshly turned soil. A first pair of spaced apart arms are adjustably secured to the main plow beam and extend rearwardly and laterally therefrom. A second pair of spring loaded arms are pivotally

and vertically adjustably secured at their upper ends to a first pair of arms and extend downwardly therefrom. A horizontal bar means is adjustably secured to the lower ends of the second pair of arms and has a plurality of spaced apart teeth extending downwardly therefrom. The spring loaded arms yieldably urge the teeth into the soil to mulch the soil as the plow is moved in the field. The second pair of arms, bar and teeth may pivot upwardly and rearwardly as a unit if a foreign object is struck by the teeth to prevent damage to the assembly and plow.

3,574,321

SLIDING WEIGHT SCALE FOR DIFFERENT WEIGHT UNITS

Richard Scheerer, Murrhardt Wurttemberg, Germany, assignor to Murrhardter Waagenfabrik Gebrüder Soehne, Murrhardt Wurttemberg, Germany
Filed Oct. 20, 1969, Ser. No. 867,562
Claims priority, application Germany, Oct. 22, 1968, G6803306
Int. Cl. G01g 1/32, 1/36
U.S. Cl. 177-247

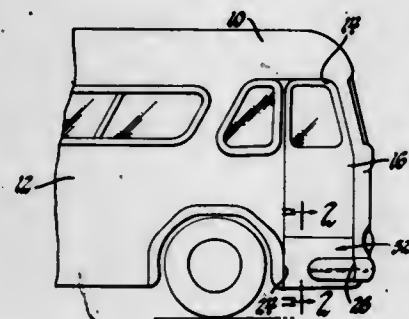


A platform scale has a balance beam with at least two graduated scales having different units of weight. A weight is slidable along two graduated scales and carries two arresting teeth whose relative position can be adjusted so that only one arresting tooth cooperates at any time with recesses of a scale beam having the selected graduated scale.

3,574,322

TWO-POSITION STEP FOR BUSES

Richard H. Hancock, Orchard Lake, and Dale O. Hargraves, Drayton Plains, Mich., assignors to General Motors Corporation, Detroit, Mich.
Filed Sept. 25, 1969, Ser. No. 860,945
Int. Cl. B60v 3/02
U.S. Cl. 180-102

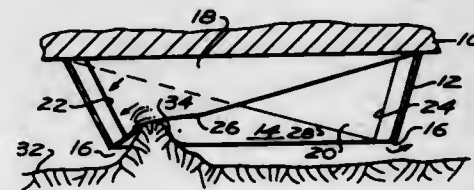


A bus-type vehicle body has a step arrangement mounted in the door stepwell thereof which step arrangement is movable between a retracted position wherein a step panel portion thereof closes the opening in the interior floor to the stepwell while a frame portion thereof closes the lower portion of the vehicle body door opening, and an extended position wherein the step panel provides a step between ground level and the interior floor level. The step panel portion is arranged to invert its surfaces when moving between its interior floor closing position and its step forming position and a pressure sensitive switch pad on the step panel moves therewith between exposed and concealed positions during the inversion.

3,574,323
SKIRT CONTROLLERS FOR FLUID CUSHION VEHICLES

William F. Shiftet, Rancho Cordova, Calif., assignor to Aerojet-General Corporation, El Monte, Calif.
Filed Mar. 19, 1969, Ser. No. 808,449
Int. Cl. B60v 1/16
U.S. Cl. 180-127

5 Claims



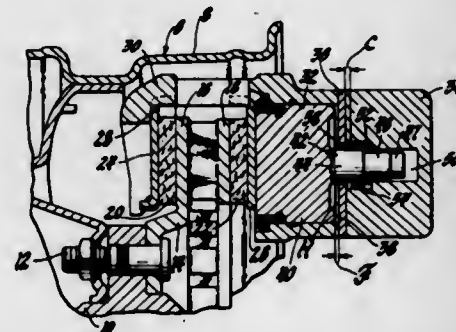
A controller according to the present disclosure comprises a restraining means, preferably in the form of a triangular membrane, attached to the lowermost portion of a skirt or a fluid cushion cell and to the fluid cushion vehicle so as to maintain the cell noncircular. The restraining means provides independent restraint of a side of skirt of the vehicle, thereby permitting flexibility of the cell when the vehicle traverses obstacles.

3,574,324

DISC BRAKE ADJUSTING AND ANTI-KNOCKBACK MECHANISM

George E. Kellogg, Bougival, France, assignor to General Motors Corporation, Detroit, Mich.
Filed Mar. 7, 1969, Ser. No. 805,191
Int. Cl. F16d 65/54
U.S. Cl. 188-71.8

2 Claims



A disc brake apply piston slidably disposed within a caliper supported cylinder wherein the piston comprises an axially extending extension disposed within a stepped bore of a cap member enclosing one end of the cylinder. The extension also is stepped in form and has a spring member coiled therearound on a major diameter such that wear of the brake linings causes coils of the spring from the major diameter to move onto a portion of a lesser diameter where these coils engage the stepped abutment in the cylinder wall thereby limiting movement of the piston away from the brake disc. This arrangement is dimensioned to provide a specific clearance between the disc brake linings and the rotating braking disc attached to the vehicle wheel. In this manner brake lining wear and brake disc deflection are compensated maintaining a constant clearance so that movement of the brake pedal provides a specific brake applying pressure each time the operator desires to retard movement of the vehicle.

3,574,325

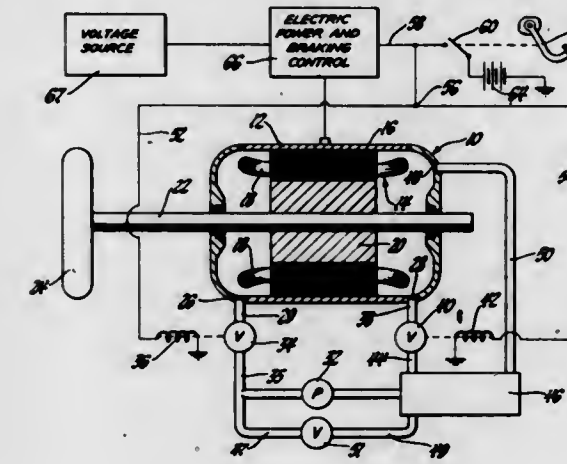
BRAKING SYSTEM FOR ELECTRIC MOTORS

Paul D. Agarwal, Birmingham, Mich., assignor to General Motors Corporation, Detroit, Mich.
Filed Feb. 19, 1969, Ser. No. 800,621
Int. Cl. F16d 65/36
U.S. Cl. 188-156

6 Claims

A braking system for electric motors and particularly a braking system for braking an induction motor which is

utilized to propel a vehicle. The braking system utilizes combined hydraulic and electric braking where the interior of the electric motor is flooded with a fluid cooling medium such as oil at the same time that the motor is connected in an electric braking mode of operation. The cooling oil which is supplied to the interior of the motor provides a viscous drag on the rotor of the motor since it fills the air gap of the motor and, therefore, impedes rotation of the motor rotor. The electric braking, which takes place at the same time as the hydraulic braking, can be performed by a braking operation



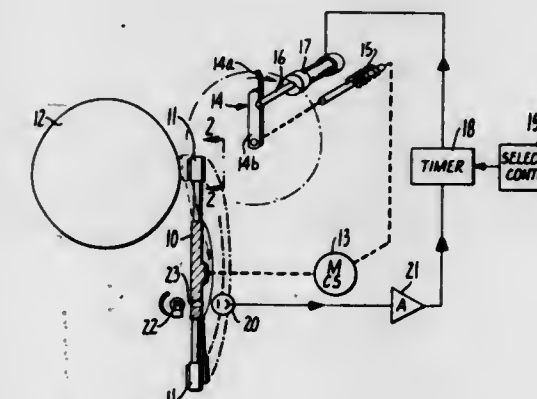
where the stator winding is connected with a source of direct current or can be performed by a plugging operation where two of the input leads to a polyphase motor have their connections to a source of alternating current reversed. During the electric braking heat is generated in the rotor of the motor and the cooling oil performs the function of a hydraulic retarder as well as cooling the rotor during the time that the motor is operating in a braking mode. The invention is particularly useful in braking electrically powered vehicles for extended periods of time where the vehicle is propelled by an electric motor.

3,574,326

ACTUATING MECHANISM FOR ROTATING PRINTING DISC

Ralph Koehn, San Francisco, Calif., assignor to Donald F. Flynn, San Francisco, Calif.
Filed Mar. 26, 1968, Ser. No. 716,088
Int. Cl. B41j 1/24
U.S. Cl. 197-49

6 Claims

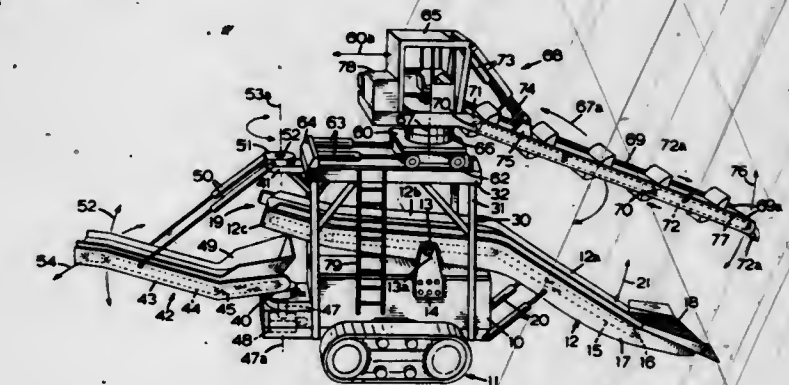


Apparatus for selectively actuating one of a plurality of character pads on a continuously rotating disc, comprising a rotary hammer mounted with respect to the disc for momentarily engaging, centering and actuating a selected character pad at a printing position adjacent to a platen.

3,574,327
LOADER

Michele Golfi, 149 Simcoe St. East, Hamilton, Ontario, Canada
Filed Mar. 21, 1969, Ser. No. 809,198
Int. Cl. B65g 65/06
U.S. Cl. 198-8

2 Claims



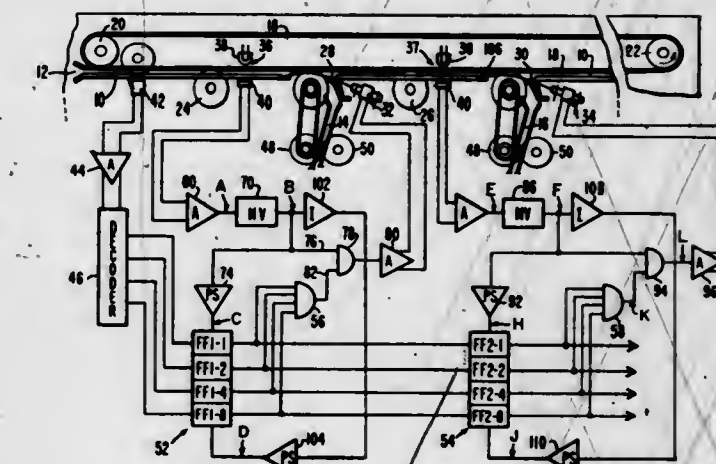
A mobile apparatus, for collecting and loading loose material, which is adapted to locate the intake of a conveyor at the site of the loose material for transfer rearwardly to a loading point. An endless feeder for the conveyor, located above the intake, is maneuverable forwardly and rearwardly, laterally, and vertically to reach material in the area of the conveyor intake.

3,574,328

DOCUMENT TRANSPORT SYSTEM

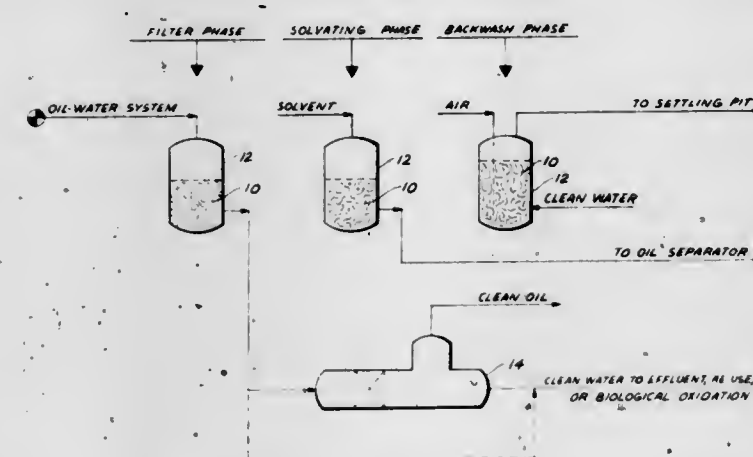
William E. Holmes, Birmingham, Mich., assignor to Burroughs Corporation, Detroit, Mich.
Filed Apr. 17, 1969, Ser. No. 816,912
Int. Cl. B07c 5/344
U.S. Cl. 209-74

3 Claims



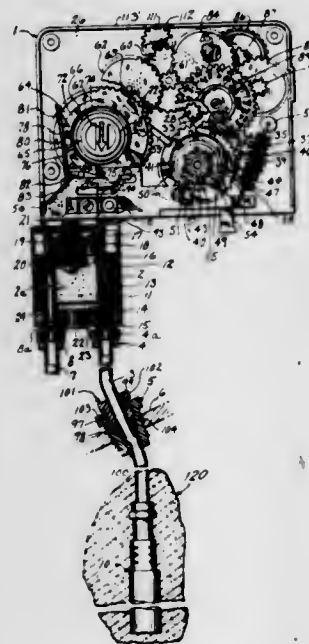
A document transport system embodying a main guideway for singly conveying documents to one of a plurality of gated intersecting auxiliary guideways is disclosed. The destination of the document is read from the document by a reader such as a magnetic reading head. This information is then synchronously transferred through a plurality of registers with the movement of the document along the main guideway. Positioned along the main guideway and anteriorly to each intersecting guideway is a document detector having the functions of transferring the information from the previous register to the present register and actuate the gate to the auxiliary guideway if there is a verification between the destination information in the register and the gate identification. Several documents having different destinations may be transported along the main guideway at any one time.

3,574,329
PROCESS FOR PURIFYING WATER CONTAINING OIL AND SOLIDS
 David K. Beavon, Long Beach, Calif. (702 S. Serrano #12 Los Angeles, Calif. 90005)
 Filed Sept. 29, 1969, Ser. No. 861,633
 Int. Cl. B01d 23/24
 U.S. Cl. 210—80



Water containing oil and particulate solids, typically oil-wet solids, is filtered through a filter media, such as a sand, to retain particulate solids thereby yielding clear water or a mixture of solids-free oil and water, which will readily separate by gravity. The filter media is periodically regenerated by steam stripping to remove retained oil, then backwashed to remove oil-free particulate solids.

3,574,330
SENSOR CONTROL
 David G. Prosser, Milwaukee, Wis., assignor to Autotrol Corporation, Milwaukee, Wis.
 Filed Apr. 23, 1969, Ser. No. 818,763
 Int. Cl. B01d 15/04
 U.S. Cl. 210—96

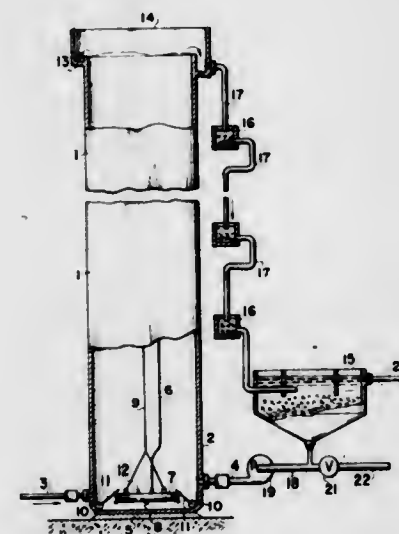


A water softener sensor control transmits the output of a motor in response to hardness of periodic water samples. The motor drives a timing gear that periodically actuates a control assembly to slide a cam member to open a valve in a resin containing chamber to admit a water sample, and to drop a plunger on the resin to detect its volume. If the water is hard, the resin shrinks and a latch on the plunger actuates an output assembly driven through a gear train by the motor to rotate an output shaft. This control also includes means for varying the level from which water samples are taken, and several novel mechanisms disclosed in detail.

ERRATUM

For Class 210—107 see:
 Patent No. 3,574,509

3,574,331
AERATION TANK FOR WASTE TREATMENT
 Keiji Kurosawa, Kamakura, and Makio Nakashio, Yokohama, Japan, assignors to Mitsubishi Kakoki Kaisha Ltd, Tokyo, Japan
 Filed July 15, 1969, Ser. No. 841,792
 Claims priority, application Japan, Dec. 18, 1968, 43/92285
 Int. Cl. C02c 1/12
 U.S. Cl. 210—195



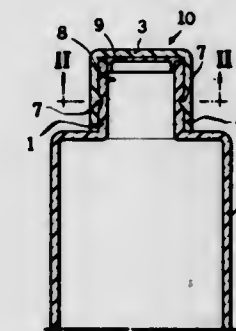
The aeration tank in a plant for waste treatment by means of activated sludge is about 30 meters high and slender, and waste and oxygen-bearing gas are supplied to the bottom of the tank at the prevailing hydrostatic pressure of more than 40 p.s.i.g., thereby accelerating oxygen absorption by the mainly aqueous waste material and increasing the processing capacity of the tank over shallower tanks of equal volume.

3,574,332
TRAILER LIFTING AND DUMPING APPARATUS
 Clifford C. Wetzel, Rte #1, Ithaca, Mich. 48847
 Filed June 9, 1969, Ser. No. 831,568
 Int. Cl. B65g 67/36
 U.S. Cl. 214—49



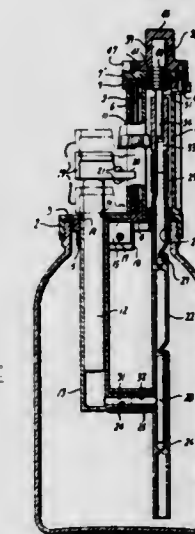
Apparatus for dumping a vehicle having a load carrying bed located at a conventional level and comprising an elongated platform on which the vehicle may be driven so as to cause the discharge end of the load carrying bed to engage an abutment having its upper surface at a level corresponding substantially to that of the load carrying bed. The platform is pivoted to rock about an axis at a level corresponding to that of the load carrying bed, thereby enabling the contents of the vehicle to be discharged onto a conveyor or the like without falling from the height at which the load carrying bed is located. The platform preferably includes a vertically adjustable gate to provide a variable size throat through which the vehicle's contents must pass, thereby affording means for regulating the rate of discharge of the vehicle's contents.

3,574,333
CONTAINER CLOSURE
 Hisaaki Ohara, 124 Ukita-cho, Kita-ku, Osaka, Japan
 Filed May 19, 1969, Ser. No. 825,555
 Int. Cl. B65d 41/22
 U.S. Cl. 215—41



The present invention relates to an improvement of a container closure comprising a container provided with an open-topped cylindrical neck member and a cap member provided with a skirt portion and removably mounted on the neck member. A plurality of circumferentially spaced annular grooves are provided in either the outer wall of the neck member or the inner wall of the cap member, and a plurality of projections receivable in the grooves are formed on the other of these walls. At least one of the cap member and the container is made of relatively elastic material.

3,574,334
DILUTOR PIPETTE
 William J. Roach, San Mateo, Calif., assignor to Oxford Laboratories, San Mateo, Calif.
 Continuation-in-part of application Ser. No. 687,372, Dec. 1, 1967, now Patent No. 3,452,901, dated July 1, 1969. This application Feb. 10, 1969, Ser. No. 798,006
 Int. Cl. B67d 5/40
 U.S. Cl. 222—385

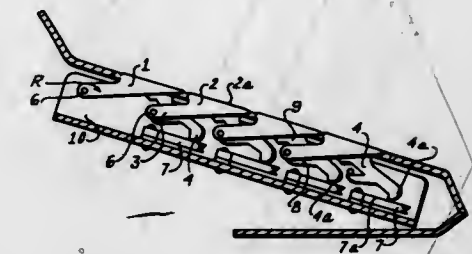


A dilutor pipette for accurately dispensing a precise amount of sample material together with a variable selected precise quantity of diluent is described having a diluent container, measuring and dispensing mechanism and a sample syringe barrel connected to said diluent dispensing mechanism with diluent and sample barrels provided with annular sharp transverse edges.

3,574,335
KEYBOARD WITH INTERCONNECTED KEYS
 Heinz Ricke, Braunschweig, Germany, assignor to Olympia Werke AG, Wilhelmshaven, Germany
 Filed Nov. 26, 1969, Ser. No. 880,230
 Int. Cl. G06c 7/02; B41j 5/08
 U.S. Cl. 235—145

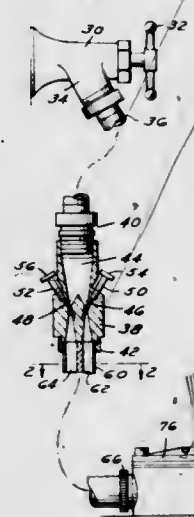
Integral keys including a finger piece, a connecting arm and a support arm are arranged in lines and column rows in a

keyboard. The support arm of each key has a guide opening for guiding the connecting arm of the preceding key, and is located under the finger piece of the respective preceding



key of the same column row. The supporting arms of all keys of several lines are mounted for angular movement with the finger pieces about parallel shafts.

3,574,336
LAWN SPRINKLING APPARATUS
 Peter C. Eppe, Detroit, Mich., assignor to William P. Kramer, Royal Oak, Mich., a fractional part interest
 Filed Dec. 26, 1968, Ser. No. 786,874
 Int. Cl. B05b 1/08
 U.S. Cl. 239—101

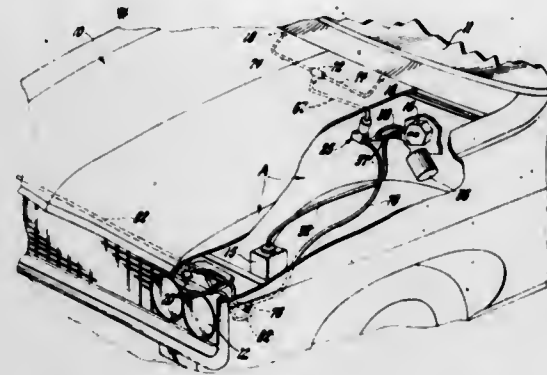


A remotely-controlled lawn water sprinkler which is designed to provide an infinite spray pattern adjustment from a safe distance outside the spray pattern and which permits the sprinkling of areas of lawn with defined boundaries such as rectangular areas, the device utilizing a fluidic control switch for shifting the spray from one portion of an area to another and utilizing also a multiple passage hose for facilitating the control.

3,574,337
WINDSHIELD AND HEADLAMP WASHER SYSTEM
 Ralph W. Edwards, Bellbrook, and Harry Kronson, Jr., Kettering, Ohio, assignors to General Motors Corporation, Detroit, Mich.
 Filed June 17, 1969, Ser. No. 834,042
 Int. Cl. B05b 1/10
 U.S. Cl. 239—284

In a preferred form, a washer system for supplying washer fluid under pressure to either a windshield or a plurality of headlamps of an automotive vehicle is disclosed. The washer system includes a source of washer fluid, a washer pump in communication with the source for delivering washer fluid under pressure, when energized, a diverter valve mechanism having inlet means in communication with the washer pump and first and second outlet means, and windshield and headlamp nozzles adapted to be positioned adjacent the windshield and the headlamps and in communication with the first and second outlet means of the diverter valve mechanism, respectively. The diverter valve mechanism

includes a solenoid operated valve member having a normal position in which it directs the washer fluid toward the windshield nozzles and a retracted position, when energized by a manual control means operated by the operator of the vehicle, in which it directs the washer fluid to the headlamp nozzles of the vehicle.

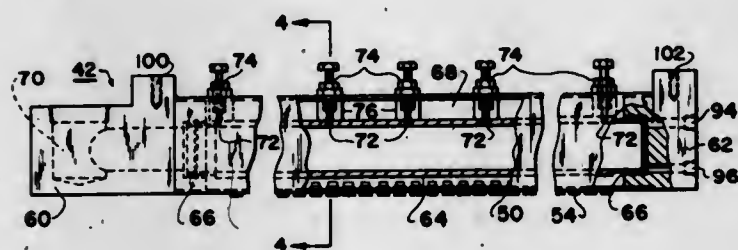


windshield nozzles and a retracted position, when energized by a manual control means operated by the operator of the vehicle, in which it directs the washer fluid to the headlamp nozzles of the vehicle.

3,574,338 STEAM DISTRIBUTION SYSTEM

Clifford D. Sheler, Covington, Va., assignor to Westvaco Corporation, New York, N.Y.
Filed Nov. 18, 1969, Ser. No. 877,615
Int. Cl. B05b 1/14
U.S. Cl. 239-553.3

13 Claims



A system for distributing steam to a travelling web includes an elongated chamber having numerous steam distribution outlets arranged therealong and a steam inlet manifold extending lengthwise along the interior of the chamber. A plurality of ports formed along the manifold serve to admit steam from the manifold to the chamber. A system of manually adjustable valves individually controls the amount of fluid passing through each port from the manifold into the chamber to thereby enable an operator to selectively establish various profiles of steam distribution. In a preferred embodiment the system is located above the web. The steam distribution outlets are directed downwardly and each is surrounded on the interior of the chamber by an upstanding ferrule which prevents condensation from passing from the chamber onto the web.

3,574,339 BRAKE ADJUSTING MEANS FOR FLY REELS

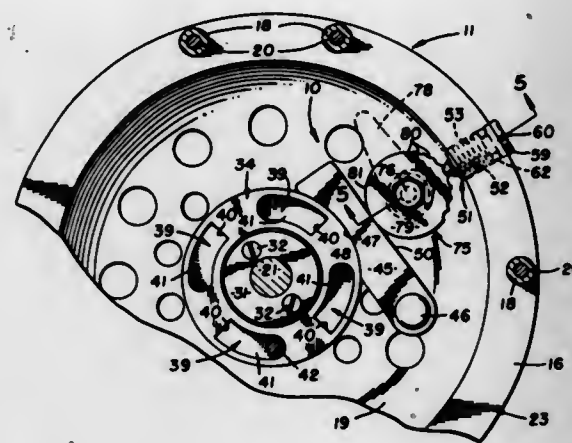
Thomas F. Sarah, Akron, Ohio, assignor to Shakespeare of Arkansas Inc., Fayetteville, Ark.
Filed Nov. 1, 1968, Ser. No. 772,558
Int. Cl. A01k 89/02

U.S. Cl. 242-84.5

8 Claims

A fly reel has a line spool rotatably mounted within a housing. A brake means to resist rotation of the spool in at least one direction employs a drum rotatable with the spool in at least that direction in which rotational resistance is desired. A shoe means incorporated on a brake arm supported from the housing frictionally engages the drum and an adjusting means selectively varies the pressure with which the shoe engages the drum. The adjusting means comprises a wedge means that transmits pressure force from a thrust means to a reaction surface on the side of the brake

arm opposite the shoe means. A control means varies the span of the wedge means between the thrust means and the



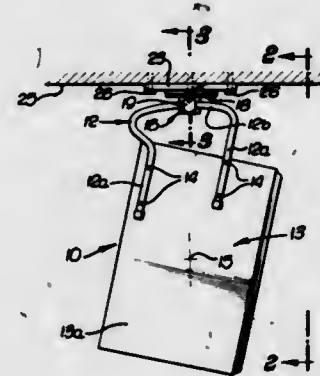
reaction surface and thereby the pressure force applied by the shoe means against the drum.

3,574,340 TELEVISION RECEIVER ADJUSTABLE TILT SUSPENSION

Kenneth A. Busche, 18728 Prairie St., Northridge, Calif.
Filed Feb. 27, 1969, Ser. No. 802,843
Int. Cl. A47f 5/01; A47b 81/06

U.S. Cl. 248-285

11 Claims



The disclosure concerns apparatus for hanging heavy devices, such as television receivers, with provision for adjustable tilt, and enabling connection of the apparatus to the receiver frame structure away from an axis through the receiver center of gravity.

3,574,341 VALVE CLOSURE FOR LADLES AND THE LIKE

Hans Reinhard Fehling, Zug, Switzerland; Hans-Joachim Winkler, Krefeld-Uerdingen, and Karl Modler, Krefeld-Linn, Germany, assignors to Didier-Werke A. G., Wiesbaden, Germany

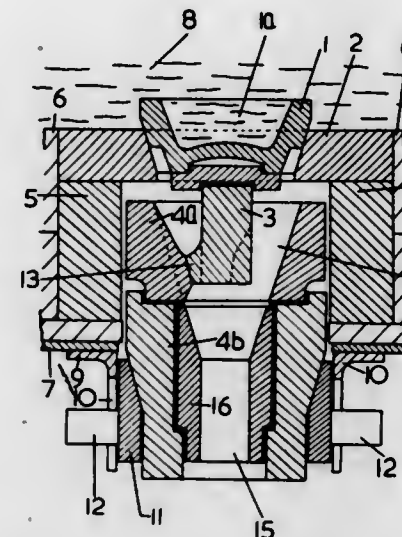
Filed Dec. 26, 1968, Ser. No. 786,980
Claims priority, application Great Britain, Dec. 30, 1967, 59289/67

U.S. Cl. 251-319

6 Claims

In a valve closure assembly for controlling the discharge of molten material from the base of a container (e.g. the discharge of molten steel from a casting ladle) in which the flow takes place downwards through a valve seat controlled by an axially-movable valve head, the valve head is supported on a movable support member which is disposed in a flow passage through a valve body and is supported from the latter by a plurality of circumferentially-spaced struts. The valve body is movable upwards, to open the valve, by raising the

valve head through the mechanism of the support member and the downward flow from the valve seat is divided by the counter-bearing is provided for a hooklike support of a support hook pivotally connected to the tension lever. The support hook is releasably engageable with the free tension end of the belt, and the counter-bearing includes a belt part wound about the load.



struts in the flow passage into a plurality of streams passing the support member.

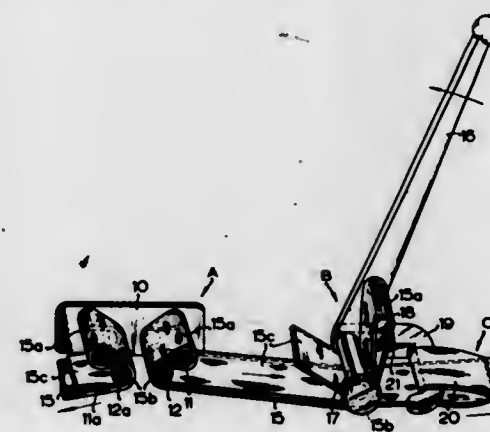
3,574,342 APPARATUS FOR CONNECTING, TIGHTENING, SECURING AND RELEASING OF BELTS

Harald Berns, Wuppertal-Elberfeld, Germany, assignor to Firma Herbert Schilbach, Schmalweberlen, Wuppertal-Barmen, Germany

Filed May 29, 1969, Ser. No. 828,880
Claims priority, application Germany, June 1, 1968, P 17 56 530.9
Int. Cl. B66f 3/00

U.S. Cl. 254-79

7 Claims

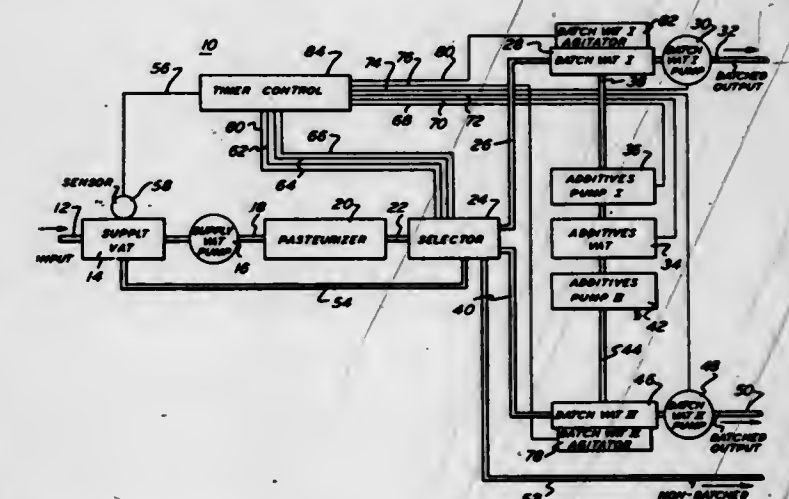


An apparatus for connecting, tightening, securing and releasing of belts, which comprises a tension lock and a swingable tension lever. A locking pin and a deviation pin are disposed spaced apart and behind each other on the tension lever for locking and deviating of a belt, and for winding the tension side of the belt about the deviation pin with formation of a substantially U-shaped single belt loop in one layer and for laying over itself partly surrounding the locking pin in two layers for support on the locking pin with formation of a double belt loop, while the securing side of the belt is secured to the tension lock, the tension lock is structurally separated from the tension lever and disposed along parallel axes and set off as to the height as well as disposed behind each other. Side cheek members receive at least one of the locking pins and one of the deviation pins. At least one of the pins is formed as a rotatable roller, in order to wind the tension side of the belt in a single belt loop, about the deviation bolt, as well as the superposed belt sections of the single loop in a double belt loop about the locking bolt with formation of a belt self-locking securing system, the belt part surrounding the load as well as the free tension end of the belt disposed substantially parallel to a plane extending through the bolt axes of the tension lock, a

3,574,343 MIXING SYSTEM

Joel L. Cutler, Huntingdon Valley, Pa., assignor to Cutler Davis Products, Inc., Philadelphia, Pa.
Filed June 25, 1969, Ser. No. 836,347
Int. Cl. B01f 5/00, 7/00, 15/02
U.S. Cl. 259-18

11 Claims



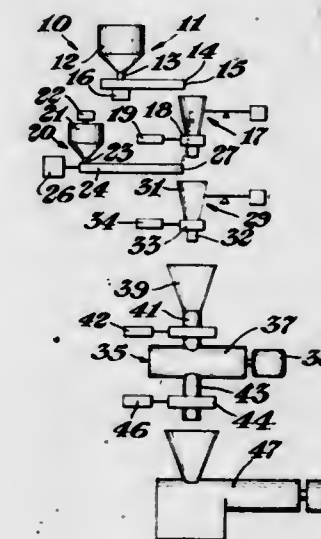
A mixing system wherein liquid from a supply vat is pasteurized and then successively combined with additives in first and second batch vats. A control mechanism operating on a predetermined time basis is utilized to switch from one vat to the other when one vat is filled, to introduce additives into the vat, to mix the pasteurized liquid and the additives with an agitator, and to evacuate the filled vat while the other vat is being filled in order to prepare for the next cycle of operation. In addition, the control mechanism diverts the unbatched pasteurized liquid to the supply vat in the event that the liquid in the supply vat falls below a predetermined level.

3,574,344 BLENDING OF PARTICULATE MATERIALS IN PREDETERMINED QUANTITIES

Theodore C. Wallace, Midland, Mich., assignor to The Dow Chemical Company, Midland, Mich.
Filed July 7, 1969, Ser. No. 839,416
Int. Cl. B01f 5/00

U.S. Cl. 259-18

7 Claims



Pigments in a polymer particle are blended in predetermined quantities employing two weighing hoppers.

The hopper weighing the larger particle size material is discharged through the hopper weighing the smaller particle size material, thereby eliminating "hangup" or adherence of the finer material to the weighing hopper.

3,574,345

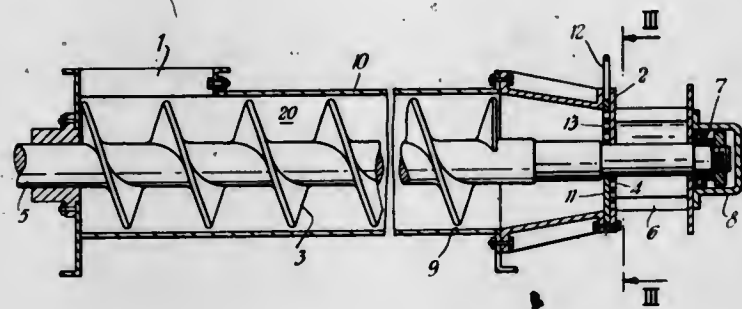
TREATMENT OF FINELY DIVIDED MATERIALS
Ronald Eric Brociner, Cornwall, England, assignor to English Clays Lovering Pochin & Company Limited, St. Austell, Cornwall, England

Filed Aug. 13, 1968, Ser. No. 752,293
Claims priority, application Great Britain, Aug. 18, 1967, 38276/67

Int. Cl. B28c 7/04

U.S. Cl. 259-148

7 Claims



A process for treating particulate materials, such as clays and chalks, predominantly comprising particles smaller than 75 microns equivalent spherical diameter wherein a filter cake of the material is passed through a pugmill having an L/D ratio in the range of from 4:1 to 10:1 under conditions such that the energy absorbed by the material is greater than 40 horsepower hours/ton of the material.

3,574,346

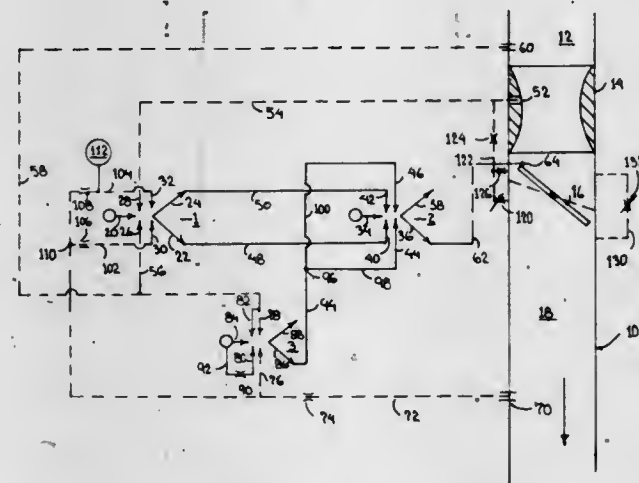
FUEL SYSTEM

Janusz S. Sulich, Detroit, Mich., assignor to The Bendix Corporation

Filed Aug. 21, 1968, Ser. No. 754,505
Int. Cl. F02m 7/06

U.S. Cl. 261-36

9 Claims



A fuel control system utilizing proportional fluidic amplifiers wherein the primary control is responsive to mass airflow derived from a venturi in the engine intake manifold. The invention is particularly characterized by the addition of compatible fluidic enrichment devices superimposed on the primary control. One enrichment device utilizes a saturable fluidic amplifier sensing manifold vacuum as a control parameter to provide selective enrichment under full power conditions. Another enrichment device develops a derivative signal proportional to the rate of change of manifold vacuum to provide a temporary fuel augment during acceleration. Idle bleed means are provided to modify the mass airflow to fuel relationship during idle conditions.

3,574,347
MECHANICAL ACTUATOR HAVING ADJUSTABLE SPRING RATE

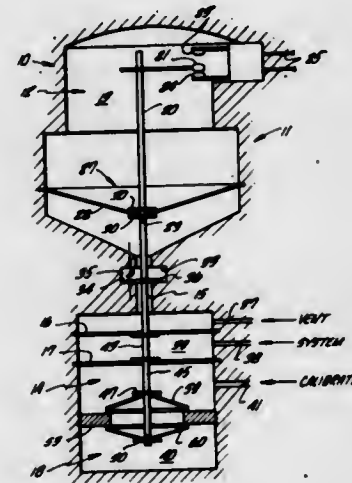
Richard E. Hughes, Venice, Calif., assignor to Southwestern Industries, Inc., Los Angeles, Calif.

Filed Mar. 7, 1968, Ser. No. 711,304

Int. Cl. F16f 1/32

U.S. Cl. 261-162

12 Claims



An actuator including a resiliently biased principal actuating member which is coupled to a pair of Belleville springs adjusted to have a total spring rate equal in magnitude and opposite in value to that of the resilient bias of the principal actuating member through a predetermined deflection range of the actuating member.

3,574,348

PAPER SHEET FEEDING DEVICE FOR THE USE OF PRINTING MACHINES OR COPYING MACHINES

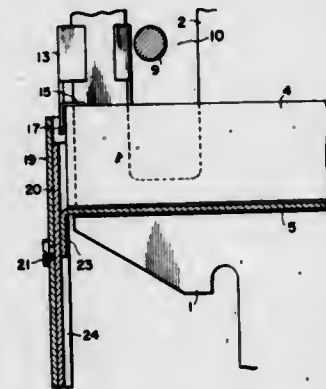
Tamaki Kaneko, Tokyo, Japan, assignor to Kabushiki Kaisha Ricoh, Tokyo, Japan

Filed July 22, 1968, Ser. No. 746,496

Claims priority, application Japan, Aug. 17, 1967, 42/70396; 42/70397
Int. Cl. B65h 1/04

U.S. Cl. 271-61

4 Claims



A paper sheet feeding mechanism for feeding the top sheet from a stack of sheets including power driven feed rollers to contact the top sheet of the stack and move it against corner separating fingers located at the forward corners of the stack.

3,574,349

PENDULUM TYPE GOLF PUTTER

Norbert Victor Kropp, 1618 Credition Parkway, Port Credit, Ontario, Canada

Filed Sept. 23, 1968, Ser. No. 761,583

Int. Cl. A63b 53/14

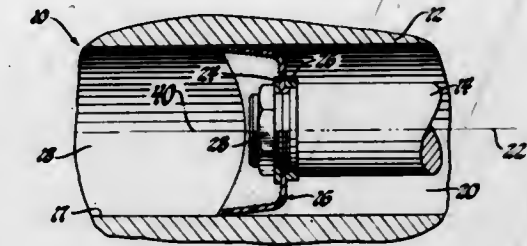
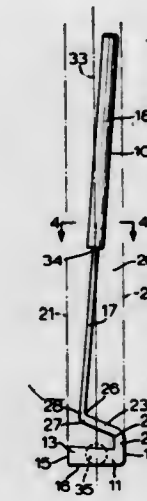
U.S. Cl. 273-81

3 Claims

A golf putter having a shaft the axis of which is subperpendicular to the sole-edge of the putter-face, the lower end of the shaft overlying the putter head, the shaft including a grip of substantially greater diameter than the

lower portion of the shaft, said grip being of elongated, cross-sectionally segmental configuration to present a flattened rear side portion designed to lie against the player's forearm

axis of the sealing member. The sealing edge is in the form of a two-cycle sine wave and is biased against the bore by axial



surface bending to establish sealing contact in an infinite number of radial planes.

3,574,352

AUTOMATIC VEHICLE LEVELING SYSTEM HAVING ELECTRONIC PRESSURE SWITCH CONTROL

James O. Elliott, Xenia, Ohio, assignor to General Motors Corporation, Detroit, Mich.

Filed Apr. 17, 1969, Ser. No. 816,901

Int. Cl. B60g 17/00

U.S. Cl. 280-124

6 Claims

when supinate. The entire length of the shaft is disposed between two spaced vertical planes extending upwardly from the toe and heel of the head.

3,574,350

SLAP SHOT HOCKEY GAME

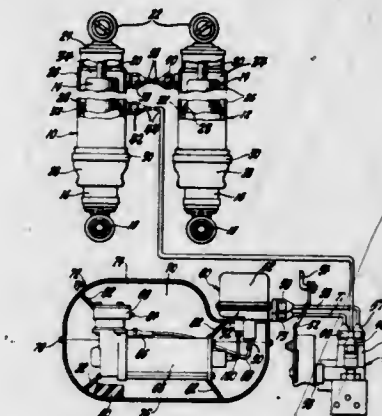
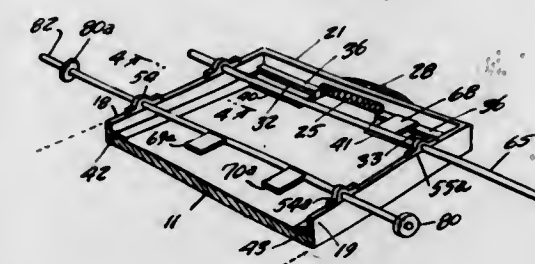
John F. May, 650 Main St., New Rochelle, N.Y. 10801

Filed Oct. 4, 1968, Ser. No. 765,263

Int. Cl. A63f 7/06

U.S. Cl. 273-85

1 Claim



In preferred form, an automatic vehicle leveling system including a fluid spring component, an electric motor-driven compressor and a storage tank. A height controller controls pressure in the fluid spring means in accordance with vehicle load. A diaphragm operated electrical switch is responsive to system pressure to complete a start circuit for the drive motor. It is associated with a solid-state control module and relay hold switch that shunt the pressure switch whereby it opens without arcing. A timer circuit in the module maintains the motor energized whereby the system is pumped down to cause the pressure switch to be pressure biased against operation in response to road movements of the vehicle.

3,574,353

LATERALLY SWINGABLE HITCHING POLE FOR AGRICULTURAL MACHINE

Werner Fromme, Greffen, and Helmut Claas, Harsewinkel, Germany, assignors to Gebr. Claas, Harsewinkel über Guttersloh, Germany

Filed Apr. 30, 1969, Ser. No. 820,490

Int. Cl. B60d 1/16

U.S. Cl. 280-462

7 Claims

Donald D. Stoltman, Henrietta, N.Y., assignor to General Motors Corporation, Detroit, Mich.

Filed Oct. 30, 1969, Ser. No. 872,669

Int. Cl. F16j 9/08

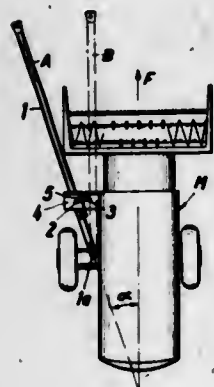
U.S. Cl. 277-212

2 Claims

A seal assembly for the space between a bore and a relatively reciprocating shaft includes a cup-shaped sealing member mounted at one end on the shaft and having an axially extending outer conical sleeve which radially outwardly terminates at the other end in a peripheral sealing edge defined by the intersection of the conical sleeve with a right cylindrical surface having an axis perpendicular to the

An agricultural machine of the type which is drawn by tractor or other locomotion-providing vehicle. The machine has a wheeled carriage traveling in predetermined direction, a hitching pole for hitching the carriage to the tractor or like vehicle, mounting means mounting one end of the hitching pole to the carriage for pivoting movement relative thereto about a pivot axis between two positions in one of which the hitching pole stands in substantial parallelism with the direction of travel and in the other of which it extends transverse to the direction of travel laterally beyond the carriage. Arresting means arrests the hitching pole in the

respective positions thereof and includes a traverse member provided on the carriage and having a slot one portion of which extends substantially normal to the direction of travel and the other portion of which is inclined to the one portion and to the direction of travel. A pin is rigidly provided on the hitching pole and guided for sliding movement in the slot. A double-armed lever is pivotally mounted laterally of the slot



so that the respective end portions of its arms can move across the slot at one or the other end of the latter, and a manually operable handle is associated with this lever and serves to move one or the other end portion of the arms thereof across the slot so that, when the pin is located at one or the other end of the slot, it can be blocked in its position and prevented from movement.

3,574,354

FLEXIBLE COUPLING

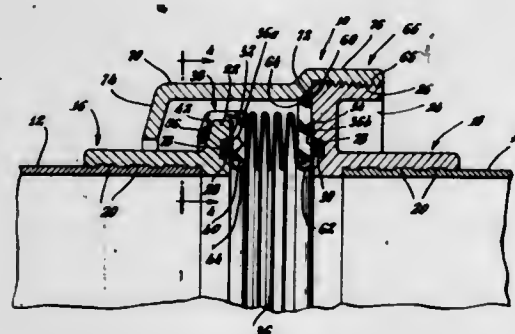
Howard T. Mischel, Middletown, R.I., assignor to Avica Corporation, Middletown, R.I.

Filed May 8, 1969, Ser. No. 822,958

Int. Cl. F16 55/00

U.S. Cl. 285-16

8 Claims



The disclosed flexible coupling is for joining sections of rigid conduit, with provision for angular and axial flexibility, and static sealing against fluid leakage. The conduit sections are interconnected by a tubular metal bellows, secured by split rings and a coupling nut to ferrules swaged to the conduit ends. O-ring or similar seals are provided in recesses in the ferrules abutting the ends of the metal bellows to provide sealing means which do not flex despite lateral and axial flexure of the bellows. The coupling may be readily removed or repaired in situ by manual removal of the coupling nut and release of the split rings. In an alternate embodiment at least one of the bellows ends is swaged in place between the ferrule and the conduit end, eliminating and O-ring seal.

3,574,355

HOSE CONNECTION

Hans Oetliker, Oberdorfstrasse 21, Horgen, Switzerland

Filed Sept. 24, 1968, Ser. No. 762,076

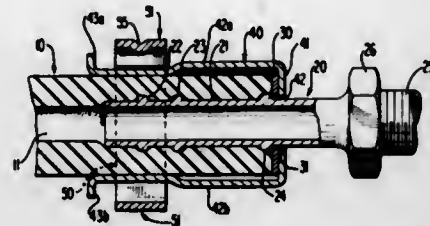
Int. Cl. F16 33/20

U.S. Cl. 285-39

18 Claims

A hose connection between a nipple and a hose which

includes a sleeve having a plurality of axially extending finger portions mounted over the hose and a clamp with one or



more folds adapted to be contracted for securely clamping the sleeve onto the hose and thus the hose onto the nipple.

3,574,356

PREFORMED CONDUIT

Phillip Salerno, 720 Avenue W, Brooklyn, N.Y., and Michael Sammaritano, 910 Manor Lane, Bayshore, N.Y. 11706

Filed Mar. 19, 1969, Ser. No. 808,452

Int. Cl. F16 35/00, 55/00

U.S. Cl. 285-39

4 Claims



A preformed conduit for underground cables, electrical wires and the like consists of a plurality of pipes encased within an elongated concrete body which is formed by pouring concrete around said plurality of pipes as the latter are supported in parallel, spaced relationship. Reinforcing means comprising longitudinally and transversely extending members are preassembled in place before the concrete is poured therearound. To facilitate joining the longitudinal ends of two like conduit sections, a plurality of coupling means are embedded in said concrete body. Accordingly, a plurality of said conduit sections may be joined to one another to form a continuous conduit in which various cables, electrical wires and the like may be carried in the pipes of the conduit sections.

3,574,357

THERMAL INSULATING TUBING

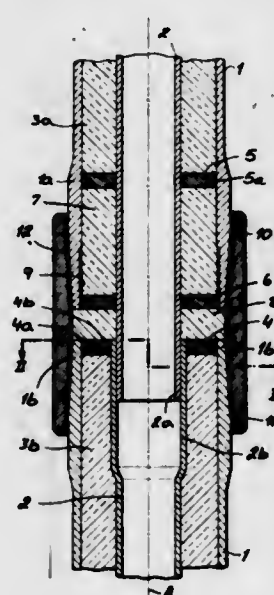
Cassius Alexandru, Tirgoviste; Petre Mihailescu, and Alexandru Stanescu, Bucharest, Romania, assignors to Grupul Industrial Pentru Foraj Si Extractia Titeiului, Bucuresti, Bucuresti-Comuna Bolintinu, Romania

Filed Feb. 27, 1969, Ser. No. 802,871

Int. Cl. F16 59/14

U.S. Cl. 285-47

9 Claims



An insulated pipe for a deep-well string comprises two coaxial tubes, one inside the other, with a mass of thermal

insulation between them. The inner tube has an enlarged upper end and a lower end that extends beyond the outer tube to allow two such pipes to telescope together. A ring connects the enlarged end of the inner tube to the inside of the outer tube while a second ring connected only to the inside of the outer tube serves as a guide for the inner tube, thereby allowing longitudinal expansion thereof. The rings act as axial walls confining the insulating mass between them.

3,574,358

FLEXIBLE PIPE COUPLING

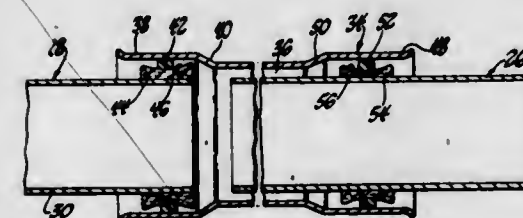
Thomas R. Cassel, Birmingham, Mich., assignor to Thomas R. Cassel, Birmingham, Mich., fractional part interest to each; Kenneth W. Cassel, Cincinnati, Ohio, fractional part interest to each; R. Nelson Cooksey, Indianapolis, Ind., fractional part interest to each; Kevin J. Cassel, Union Lake, Mich., fractional part interest to each and William E. Neighbors, St. Petersburg, Fla., fractional part interest to each

Filed Oct. 30, 1968, Ser. No. 771,786

Int. Cl. F16 21/02, 27/12, 59/14

U.S. Cl. 285-53

7 Claims



A flexible pipe coupling particularly adaptable to an exhaust system for a motor vehicle having an internal combustion engine and a vehicle frame. The flexible coupling may be disposed generally midway of the exhaust system, at which point a first pipe, such as the exhaust pipe leading from the engine manifold, coaxially receives, or terminates adjacent the end of, a portion of a second pipe, such as the tailpipe extending rearwardly of the vehicle. An intermediate pipe is received about the ends of the exhaust pipe and the tailpipe, and is coaxial therewith. The intermediate pipe defines an annular chamber with the tailpipe, the chamber being in communication with the exhaust pipe. A first resilient seal is disposed between one end of the intermediate pipe and the exhaust pipe and a second resilient seal is disposed between one end of the intermediate pipe and the tailpipe. Heat insulating means are disposed between the resilient seals and the exhaust and tailpipes respectively, to limit heat transfer from hot exhaust gasses to the resilient seals and the intermediate pipe. The resilient seals and the dimensional parameters in the coupling permit angular movement of the exhaust pipe and tailpipe relative to each other, and the intermediate pipe may be formed so as to limit axial movement of the pipes relative to each other under operating conditions of the vehicle. The annular chamber between the intermediate pipe and the tailpipe is dimensioned so that the coupling acts as a sound-attenuating device, attenuating sounds in a particular range of frequencies emanating from the engine and passing with the exhaust gasses.

3,574,359

FLUID CONDUIT COUPLING

Lee F. Klein, North Tonawanda, N.Y., assignor to General Motors Corporation, Detroit, Mich.

Filed July 22, 1969, Ser. No. 843,622

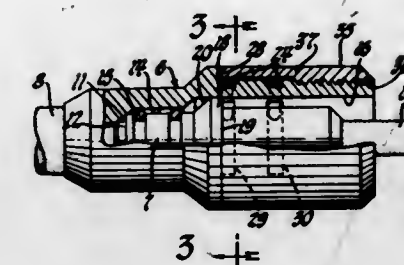
Int. Cl. F16 15/00

U.S. Cl. 285-86

4 Claims

A readily detachable coupling for conduits for fluid under pressure embodies a socket and a plug which is inserted into the socket and which is in sealing relation with the socket when fully inserted. The socket has a sleeve threaded to its outer surface which serves to retain two axially spaced sets of detents of horseshoe shape, one set of detents retaining the plug in fully inserted position. To disconnect the system, the sleeve is unscrewed and the first set of detents is removed.

This allows the plug to move outwardly to an unsealed position to bleed the system, after which the sleeve is further



unscrewed to release the second set of detents and allow disconnection of the coupling.

3,574,360

FLUID-PRESSURE-TYPE HOSE CLAMP

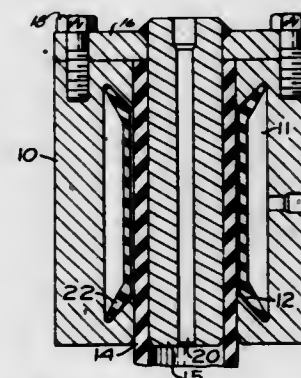
Charles E. Grawey, Peoria, Ill., assignor to Caterpillar Tractor Co., Peoria, Ill.

Filed Feb. 19, 1969, Ser. No. 800,664

Int. Cl. F16 17/00

U.S. Cl. 285-96

2 Claims



A hose clamp particularly useful for testing purposes which forms a fluidtight connection with the end of a length of hose by the use of a flexible elastic sleeve brought into firm engagement with the surface of the hose by fluid under pressure, thus preventing damage to the hose.

3,574,361

FLEXIBLE JOINT FOR PIPING SYSTEMS

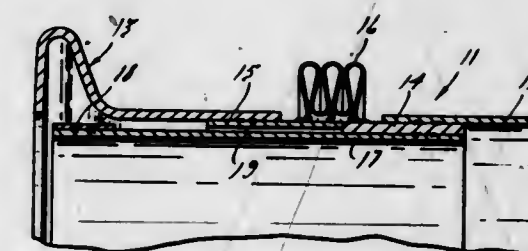
Gilbert E. Contreras, Los Angeles, and Frank P. Rindfleisch, Venice, Calif., assignors to Aeroquip Corporation, Jackson, Mich.

Filed Feb. 13, 1969, Ser. No. 799,553

Int. Cl. F16 27/10

U.S. Cl. 285-226

2 Claims



A pair of tubes have short inner sleeves extending therefrom, and a flexible bellows is secured to these sleeves and connects the two tubes. A tubular guide extends from inside one of the sleeves through the other and has an annular stop. There is clearance between the guide and the sleeve through which it extends, thus permitting limited relative lateral shifting of the two tubes. Axial play between the two tubes is limited by engagement of the sleeve surrounding the guide with the first sleeve and with the stop.

3,574,362

VACUUM SYSTEM COUPLING

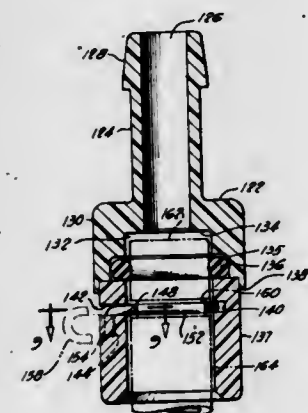
Eric Gregg, Divernon, and Robert E. Hunter, Virden, Ill., assignors to Stewart-Warner Corporation, Chicago, Ill.

Filed Apr. 17, 1969, Ser. No. 816,899

Int. Cl. F16l 39/00

U.S. Cl. 285-321

1 Claim U.S. Cl. 287-51



The following specification describes plastic coupling and check valve assemblies in which the rim of a rubber check valve is held under compression between two plastic coupling elements which are then welded to thereafter hold the rim under compression against leakage. An improved check valve utilizing either a moulded circular edge or a conical sealing surface is described and, in addition, a quick connect coupling assembly in which a spring clip located in one coupling element automatically locks a second element thereto on insertion of the second element in the one element is also described.

ERRATUM

For Class 287-20,924 see:
Patent No. 3,574,510

3,574,363
LOCKING DEVICE

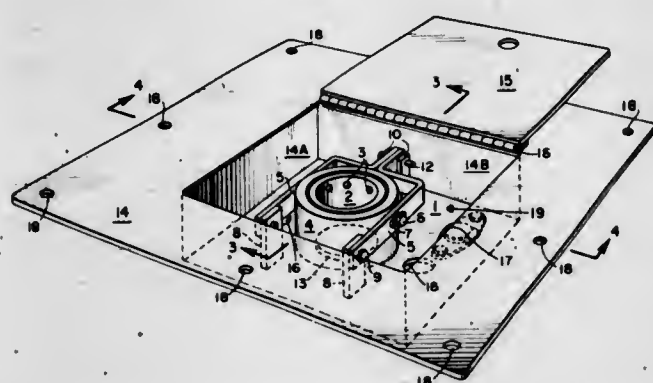
George T. Stephenson, Denton, Tex. (1406 Fannidella #133, Carrollton, Texas 75006)

Filed Nov. 12, 1968, Ser. No. 774,846

Int. Cl. F16c 11/06

U.S. Cl. 287-21

6 Claims



A locking device for securing a ball-type coupling to a base which includes a hollow cylindrical receiving cylinder adapted to receive the ball of the ball-type coupling, a series of spheres movably mounted in the periphery of the receiving cylinder, a securing cylinder adapted to fit over the receiving cylinder and engage the spheres, and a pair of hinged arms attached to the securing cylinder whereby the securing cylinder can be raised or lowered. The securing cylinder and receiving cylinder are so mechanically interrelated that when the ball is placed in the latter and the hinged arms are depressed, the securing cylinder is lowered into place over the receiving cylinder and the ball of a ball-type coupling is securely, but rotatably, locked inside the receiving cylinder.

3,574,364

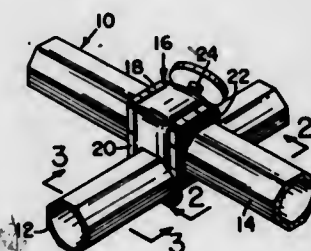
FRAME JOINT

Robert J. Langren, Alameda, Calif., assignor to Gilbert Hyde Chick Company, Oakland, Calif.

Filed Mar. 13, 1969, Ser. No. 806,917

Int. Cl. F16b 7/00

6 Claims



A frame joint includes first and second elongated bars generally perpendicular to each other, the bars being equilaterally octagonal in cross section, and means for forcing the bars together in such a way that they are stably positioned relative to each other so as to allow neither skewing nor longitudinal slippage of one bar relative to the other when either is under load.

3,574,365
LOCK FOR DETACHABLY MOUNTING A TAPE REEL HUB TO A DRIVE SHAFT

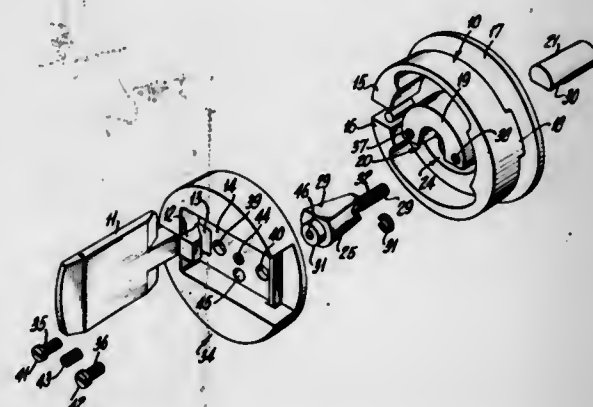
James K. Bailey, Commack, and Warren H. Enners, Farmingdale, N.Y., assignors to Potter Instrument Company, Inc., Plainview, N.Y.

Filed Apr. 7, 1969, Ser. No. 814,106

Int. Cl. F16d 1/06

U.S. Cl. 287-53

1 Claim



The specification and drawings disclose a lock for detachably mounting a tape reel hub to a drive shaft in which a conical plug is drawn into a conical slot in the hub forcing the plug upwardly so that a flat surface on the plug tightly engages a corresponding flat surface on the motor drive shaft.

3,574,366
SPLINE LINER

Lewis D. Thostenson, Hawthorne, Calif., assignor to Instrument Systems Corporation

Filed July 23, 1969, Ser. No. 844,074

Int. Cl. F16d 1/06

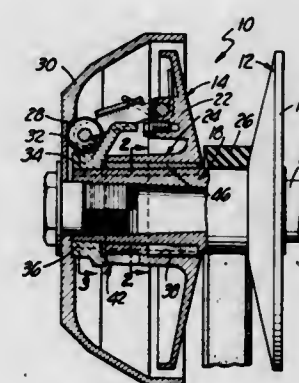
U.S. Cl. 287-53

6 Claims

A splined connection between inner and outer members including liners between the splines on the two members. The liners are made of a material capable of withstanding torque loads which fluctuate at high frequencies, whereby the splined members themselves may be made of die cast aluminum alloys for economy. The splined portion of the inner member is longitudinally tapered while the splined portion of the outer member is untapered. The spline liners are internally tapered to match the inner member and are externally untapered to match the outer member so that the

outer member may slide longitudinally on the spline liners. This permits die casting the splines on the inner member with sufficient draft for easy removal. The use of liners between splined members in this manner is particularly useful in a

bushing, the sheath being permanently interlocked to said head through a ring that has been initially mounted on said



variable speed transmission wherein the outer member comprises the movable face of a V-belt pulley which is constantly shifted back and forth longitudinally to vary the pitch diameter of the pulley.

3,574,367
COUPLING

Johannes Jankowski, Campione d'Italia, Lago di Lugano Vita Totone 17, Italy

Filed Sept. 12, 1968, Ser. No. 759,386

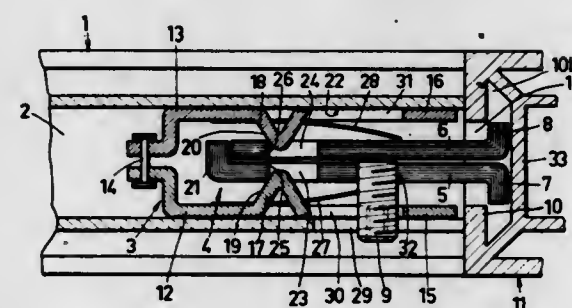
Claims priority, application Germany, Jan. 26, 1968,

J 3593 X11/47a

Int. Cl. F16b 7/04

U.S. Cl. 287-54

29 Claims



A coupling which comprises two clamping members insertable into the open-ended chamber of a first element and two locking members located between the clamping members and having hooks extending through an aperture provided in a wall of a second element. A bolt can move the locking members apart to thereby urge the clamping members against the first element and to engage the hooks with that side of the wall which faces away from the chamber. The clamping members and the locking members are provided with cams and followers or analogous tensioning devices which cooperate to urge the hooks toward the clamping members when the locking members move apart whereby the wall is pressed against the clamping members and/or against the first element.

3,574,368
PRE-LOADED BALL JOINT

Hubert D. Songer, Murfreesboro, Tenn., assignor to Perfect Equipment Corp.

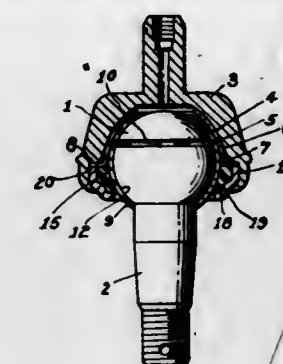
Filed Jan. 16, 1970, Ser. No. 3,298

Int. Cl. F16c 11/06

U.S. Cl. 287-87

5 Claims

The invention is in a preloaded ball-joint wherein the ball-head of the stud pin is provided with a sheath such as of phosphor-bronze in wear engagement with a wear-resistant



head and which is imbedded in the interior of said sheath during the assembly of the latter onto said head.

3,574,369
BALL JOINT

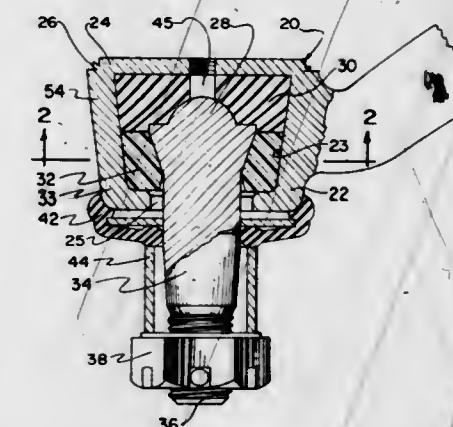
John R. Andrew, Columbus, Ohio, assignor to The Columbus Auto Parts Company, Columbus, Ohio

Filed Apr. 7, 1969, Ser. No. 813,901

Int. Cl. F16c 11/06

U.S. Cl. 287-90

4 Claims



A flexible joint construction such as is used in automotive steering linkages or the like wherein upper and lower electrically conductive housing portions are fused together at a junction, uniform torque-transmitting and vibration-damping characteristics that are accurately maintained throughout the operational life of the flexible joint.

3,574,370
BALL JOINT

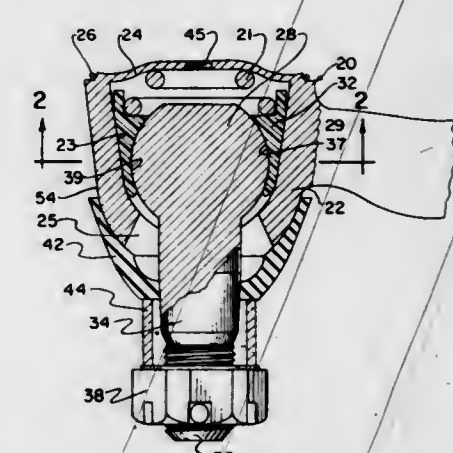
John R. Andrew, Columbus, Ohio, assignor to The Columbus Auto Parts Company, Columbus, Ohio

Filed Apr. 7, 1969, Ser. No. 813,983

Int. Cl. F16c 11/06

U.S. Cl. 287-90

8 Claims



A flexible joint construction such as is used in automotive steering linkages or the like wherein upper and lower

electrically conductive housing portions are fused together at a junction, uniform torque-transmitting and vibration-damping characteristics that are accurately maintained throughout the operational life of the flexible joint.

3,574,371

BALL JOINT SUPPORT FOR THE WHEEL SUSPENSION OF MOTOR VEHICLES

Georg Kindel, and Hans Dubielzig, Lemförde, Hannover, Germany, assignors to Firma Lemförde Metallwaren AG, Lemförde, Hannover, Germany

Filed Sept. 4, 1969, Ser. No. 855,301

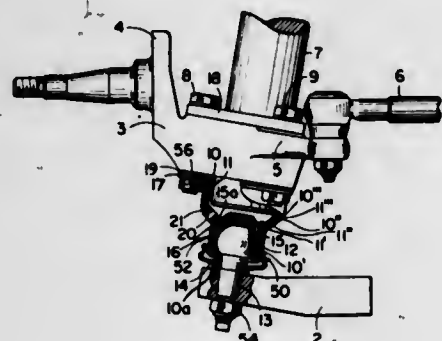
Claims priority, application Germany, Nov. 7, 1968,

P 18 07 465.2

Int. Cl. F16c 11/06

U.S. Cl. 287-90

12 Claims



A ball joint support for the wheel suspension of motor vehicles includes an outer housing portion having a central cylindrical extension forming a seat for a bearing liner and a ball head of a joint pin, and an inner housing portion forming a central cover for the cylindrical extension. Each housing portion includes an upper cylindrical extension forming a double walled housing with a flange portion which is adapted to be secured to the pad of a wheel carrier of a vehicle. The two extensions are joined together such as by indentations and by the bolt securing them to the wheel carrier pad. The upper extensions are widened out in the manner of a truncated cone and then form cylindrical portions with flanges at their outer peripheries which are bolted to the pad.

3,574,372

SPRING HINGE STRUCTURE

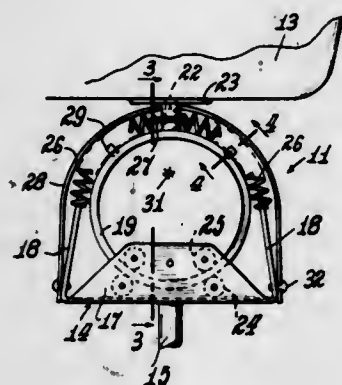
James G. Oxford, Elgin, Ill. (Rte. 1, Cave-In-Rock, Ill., 62919)

Filed Feb. 16, 1970, Ser. No. 11,736

Int. Cl. F16c 11/00

U.S. Cl. 287-100

10 Claims



A spring controlled hinge structure for complementary parts such as a support standard for a chair or the like. The structure includes a bearing ring carried by one standard part being journaled on rollers on the other standard part and a pair of springs connecting the parts and adapted to bias the parts into coaxial alignment.

3,574,373

SEPARABLE CONNECTING DEVICE, ESPECIALLY FOR COMPONENTS OF TUBULAR BRACES

Jean Le Dert, Charles Soulier, and Georges Trouillet, Aulnoye-Aymeries (Nord), France, assignors to Societe anonyme dite: Vallourec (Usines a Tubes de Lorraine-Escaut et Vallourec Reunies).

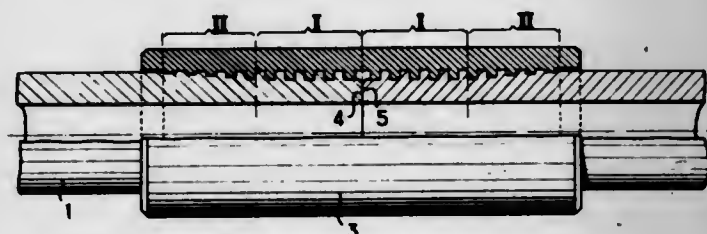
Filed Feb. 17, 1969, Ser. No. 807,163

Claims priority, application France, Feb. 20, 1968, 140490

Int. Cl. F16d 1/02

U.S. Cl. 287-117

8 Claims



Separable connection device for elongated members to be used as ties or braces in which two members are assembled by means of a threaded sleeve bringing into abutment the extremities of said two elements. The threading for securing the sleeve to the members is cylindrical and the threads have a rectangular, square or trapezoidal section and a height (or depth) which decreases gradually until it becomes zero in the vicinity of at least one end of the threading.

3,574,374

SURGICAL INSTRUMENT

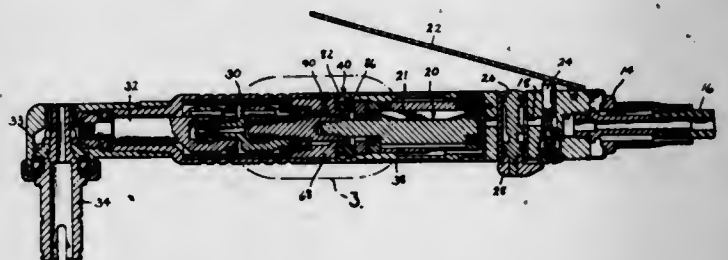
Donald D. Keller, Bourbon, Ind., and Richard D. Robinson, Bryan, Ohio, assignors to Orthopedic Equipment Company, Bourbon, Ind.

Filed Jan. 16, 1969, Ser. No. 791,582

Int. Cl. F16d 1/10

U.S. Cl. 287-119

10 Claims



A surgical instrument including a body member which houses a motor and removably mounts an interchangeable head member. The body member includes a socket part which interlockingly receives an insert part of the head member in any selected rotative position relative to the head part. Means are provided for coupling the drive shaft of the motor to a driven shaft in the head member upon insertion of the insert part of the head member into the socket part of the body member.

3,574,375

MULTIPLE SECTION ARM EXTENSION FOR TRAFFIC SIGNAL POLES

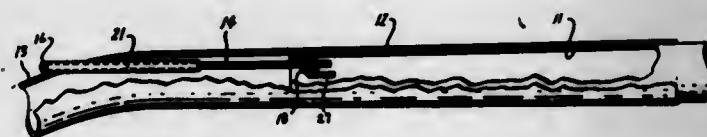
Mertz O. Scott, Oakland, Calif., assignor to Ameron Incorporated, Monterey Park, Calif.

Filed May 26, 1969, Ser. No. 827,515

Int. Cl. F16b 7/10

U.S. Cl. 287-119

5 Claims



A multiple section davit arm extension for traffic signal poles wherein a pair of tubular tapered sections are

telescopically engaged and secured by internally mounted, members engageable in one tube and an attached movable tensioning means having a manually engageable part exteriorly of the sections for drawing the sections together.

3,574,376

SHEARABLE RESTRAINING MEANS

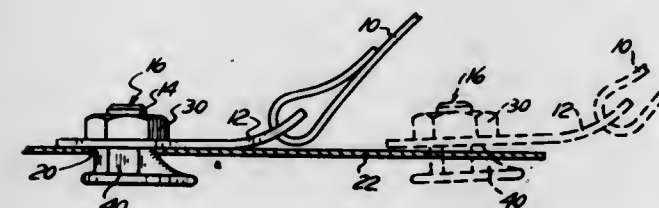
Wayne Cummins, P.O. Box 96, Garden City, Mich. 48135

Filed Feb. 24, 1970, Ser. No. 13,559

Int. Cl. F16b 21/09

U.S. Cl. 287-189.36

1 Claim



A shearable restraining means of the bolt type which anchors two parts together. The bolt features a hardened plow shaped shank functioning as a cutter. When the bolt is moved by one part under excessive load it cuts and plows a slot in the other part. The energy required to plow such slot provides a dissipation of the energy of excessive tension on the first part.

3,574,377

CUSHIONED JOINT OF MODULAR IRON TO STEEL

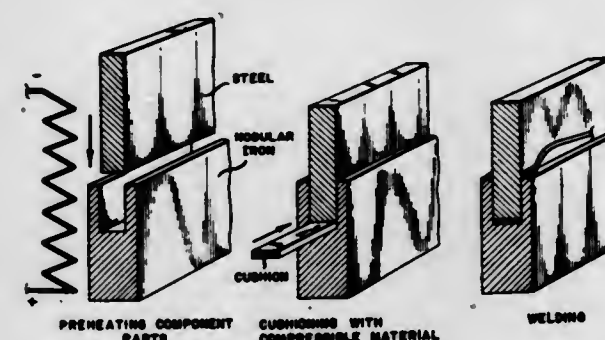
William H. Pettit, Chattanooga, Tenn., assignor to The Harriman Manufacturing Company, Chattanooga, Tenn.

Continuation-in-part of application Ser. No. 356,418, Apr. 1, 1964. This application Dec. 24, 1968, Ser. No. 786,784

Int. Cl. F16b 5/08

U.S. Cl. 287-189.36

2 Claims



This is a cushioned joint, fabricated from materials having different coefficients of thermal expansion and contraction, in particular a welding of nodular iron to steel.

A surface on a member made of one of the materials is positioned adjacent a surface of a second member made of the other material. A cushioning means is positioned between the two surfaces spacing the one surface from the other. The members are then welded together at positions distal from the cushioning means and the latter provides space for relative movement between the members due to their differing coefficients of thermal contraction as they cool after the welding is completed.

3,574,378

STRENGTHENING INSERT AND FASTENER FOR TUBULAR CONSTRUCTIONS

James H. Heywood, 1411 Doncaster Drive, Youngstown, Ohio

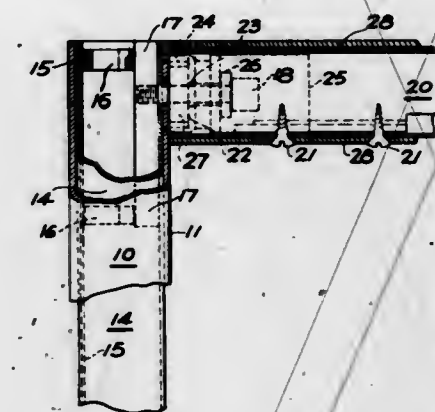
Filed May 26, 1969, Ser. No. 827,531

Int. Cl. F16b 7/04

U.S. Cl. 287-189.36

5 Claims

A strengthening insert and fastener for a tubular construction including one portion having expandable



elongated complementary fastener and reinforcing member in another tube.

ERRATUM

For Class 293-71 see:
Patent No. 3,574,406

3,574,379

RESILIENT SHOCK-ABSORBING BUMPER

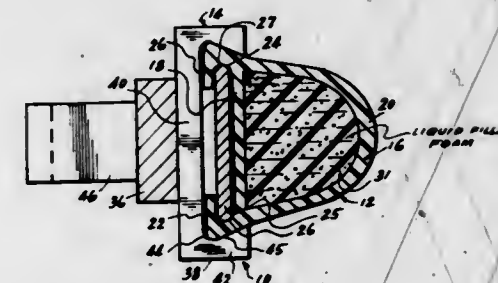
Alexander T. Jordan, 48 Mohegan Village, Yonkers, N.Y.

Filed July 8, 1968, Ser. No. 743,147

Int. Cl. B60r 19/08; B61f 19/04; F16d 57/00

U.S. Cl. 293-71

11 Claims



A shock-absorbing device comprising a bumper pad and dovetail mounting structure. The bumper pad includes a tubular casing made of nonporous, flexible plastic material with flanges on one side for removable attachment to a bracket. The other side of the pad is convex. The casing is filled with resilient, spongy, cellular foam material saturated with a liquid. Opposite ends of the casing are closed by breakable seals. The casing and foam filler flex yieldably when subjected to moderate impact, and on severe impact an end seal breaks to release liquid at a controlled rate. The bumper pad is attached to the mounting structure by a spreader plate engaged in the flanges of the casing. A plurality of bumper pads can be mounted vertically in spaced disposition in a single mounting bracket structure.

3,574,380

FIREPLACE LOG-HANDLING TONGS HAVING SEPARATE TONG ARMS

Robert J. Tague, 4908 E. Lake Shore Drive, Wonder Lake, Ill. 60097

Filed Feb. 6, 1969, Ser. No. 797,049

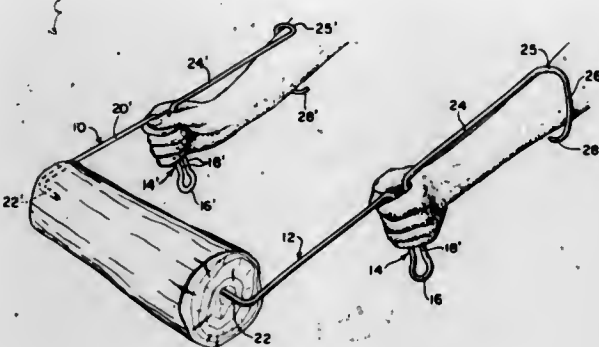
Int. Cl. B65g 7/12

U.S. Cl. 294-16

3 Claims

Fireplace log-handling equipment consisting of two

separate tong arms, each of which is engageable by a hand of leg portions recesses that correspond substantially in shape to that of the engaging means for the lifting devices so that



the user and which, when so engaged and applied to a log, exerts a tongs action thereon for lifting purposes.

3,574,381 CLAMPING TOOL

Robert M. Ocheltree, 815 Pacific Hwy., Hubbard, Oreg., and Jack L. Thompson, 10071 Lampson Ave., Apt. 7, Garden Grove, Calif. 92640

Filed Nov. 15, 1968, Ser. No. 776,138

Int. Cl. B65b 1/08, 9/02

U.S. Cl. 294-19

3 Claims



during stacking the engaging means of the lower carriers will fit into the recesses of the carriers immediately above.

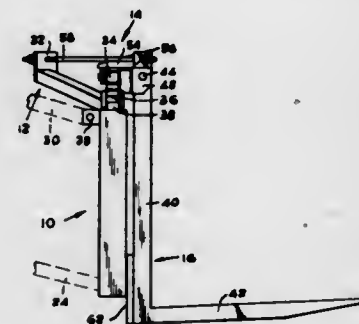
3,574,383 FORK LIFT

Adrian Robert Frater, DE Zoete Inval, Zuider Paarl, Cape Province, Republic of South Africa
Continuation of application Ser. No. 628,433, Apr. 4, 1967, now abandoned. This application Aug. 26, 1969, Ser. No. 854,027

Int. Cl. B66c 1/24; B66f 9/12

U.S. Cl. 294-67

6 Claims



A fork lift comprising a backing frame, for attachment to a lifting and lowering mechanism, a shock-absorbing suspension system mounted on the backing frame, and a fork suspended from the suspension system. By virtue of the provision of the suspension system the fork lift is capable of carrying a fragile or sensitive load over uneven ground. The fork lift may be attachable to a parallelogram four-point linkage lifting arrangement at the rear end of a tractor.

3,574,384 GRAB BUCKET FOR MOUNTING ON A MECHANICAL EXCAVATOR OR LOADER

Jean Pierre Bellart, Senlis, France, assignor to Societe Anonyme Poclain, Le Plessis-Belleville, Oise, France

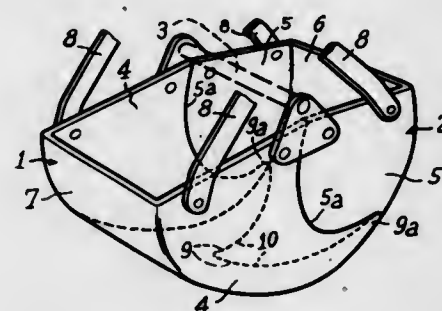
Filed Apr. 14, 1969, Ser. No. 815,591

Claims priority, application France, Apr. 18, 1968, 148,523

Int. Cl. B66c 3/02

U.S. Cl. 294-70

4 Claims



The invention relates to a grab bucket for mounting on a mechanical excavator or loader and comprising two shell parts pivoted so as to permit the grab bucket to be opened or

3,574,382 DEVICE FOR CONVEYING AND STORING OBJECTS

Hans Ulrich Strauss, Zollikerberg, Switzerland, assignor to Swiss Aluminium Ltd., Chippis, Switzerland

Filed Aug. 4, 1969, Ser. No. 847,028

Claims priority, application Switzerland, Aug. 2, 1968, 11623/68

Int. Cl. B65g 1/14

U.S. Cl. 294-67

7 Claims

A device for conveying and storing objects in guide carrying vessel means, such as containers or plate supports, has two U-shaped carriers that are spaced apart from each other and support the vessel means and have inner guide means engaging the vessel guides, have at the free ends of the legs of the carriers upper support surfaces, for carrier stacking, and have engaging means adapted to be engaged by a lifting device for conveyance, and have near the base of the

closed, the invention consisting in providing the bottom attacking edges of said shell parts respectively with a pointed portion and a complementary cutaway portion so that in the closed position of the grab bucket the pointed portion of one shell part interengages in the cutaway portion of the other shell part to completely close the bottom of the grab bucket.

3,574,385 GRAPPLING DEVICE

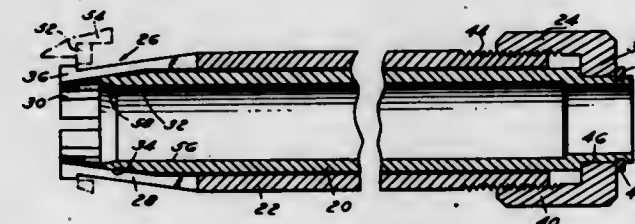
Tony Pignataro, Jr., Montpelier, Ohio, assignor to Robinair Manufacturing Corporation, Montpelier, Ohio

Filed Feb. 24, 1969, Ser. No. 801,486

Int. Cl. E21b 31/12

U.S. Cl. 294-86.25

11 Claims



A grapping device, including a generally cylindrical body member, an annular grapping sleeve telescopically received over the body member, and a nut member rotatably secured to the body member threadably receiving the grapping sleeve. The sleeve includes a plurality of resilient grapping fingers extending beyond the body member opposite the nut member. The fingers are tapered inwardly, toward the axis of the sleeve, to resiliently engage the body member.

3,574,386 GRASPING FINGERS

James D. Frost, P.O. Box 775, Porterville, Calif. 93257

Filed June 17, 1968, Ser. No. 737,557

Int. Cl. B66c 1/10

U.S. Cl. 294-87

13 Claims



Improved inflatable grasping or picking fingers forming article-grasping elements for handling various articles, such as in the picking of fruit from trees or transferring fruit or food from one conveyor to another or depositing the same within containers, each finger having a rigid support or "bone" and tie means for limiting the radial distention of the finger from the support when it is inflated. In one form of the invention, the outer covering of the finger is connected to the central support by flexible threads or strands. In another form, the outer covering is connected to the central support by a web of sheet fabric disposed transversely or longitudinally of the support. In still another form, the outer contour of the finger is defined by the free portions of a plurality of sections or chambers of flexible material. In one form the sections are partitioned longitudinally of the central support with provision for individually selectively inflating the sections. In another form, the sections are substantially coextensive with and disposed circumferentially about the central support with the longitudinal axes of the sections generally parallel thereto, including means for selectively inflating any or all of the sections; whereby some of the articles being grasped may be dropped while a holding grip is retained on others. In still another form, the sections are partitioned both longitudinally and circumferentially of the central support.

3,574,387 POWER ASSEMBLY FOR GRAPPLE OR BUCKET

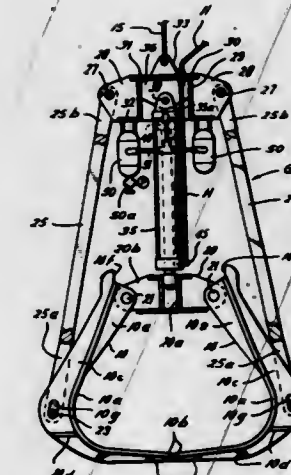
Oscar W. Hahn, Houston, Tex., assignor to McGinnes, Mfg. Co.

Filed Nov. 12, 1968, Ser. No. 774,876

Int. Cl. B25b; B66c 1/10

U.S. Cl. 294-88

7 Claims



A power assembly for a grapple or clamshell bucket having a plurality of pivoted tines or bucket elements which are actuated to a closed or holding position by hydraulic pressure and which are moved to an open or extended position by compressed gas means, and wherein a single hydraulic hose from the grapple or bucket to a crane or other location of hydraulic power serves for connecting hydraulic power to the grapple.

3,574,388 CONVERTIBLE TRAILER

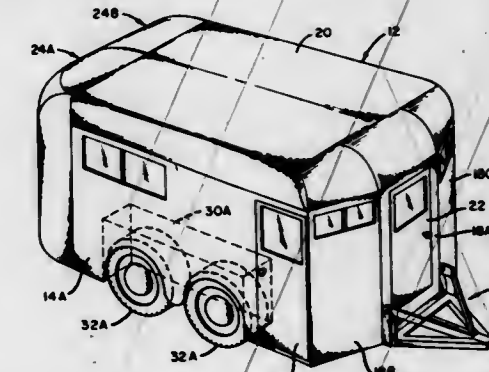
Edwin A. Stone, P.O. Box 1039, Chico, Calif. 95926

Filed Mar. 25, 1968, Ser. No. 715,696

Int. Cl. B60p 3/32

U.S. Cl. 296-23

4 Claims



A trailer for hauling horses, and the like, which trailer is convertible for use as living quarters. The trailer includes a body comprising a bed, sidewalls, front wall, roof and rear doors. Wheel wells are provided inside the trailer at opposite sides thereof to accommodate extendible and retractable wheels. Combination inner sidewall and floor panels are pivotally mounted inside the trailer adjacent the bed and wheel wells, which panels are pivotally movable between generally vertical positions wherein they serve as inner sidewalls, and generally overlapping horizontal positions wherein they serve as a floor above the trailer bed. The retractable wheel mounting includes a pair of lever arms pivotally mounted on a common axis, one of which arms carries the wheel, and the other of which is releasably locked in fixed position. A coil spring and shock absorber is provided between the pair of arms. The wheels are retracted by releasing the lock and pivoting the wheels up into the wheel wells.

3,574,389

COLLAPSIBLE CARAVANS

Johannes Martinus Smit, 8 Rust-en-Vrede, and Donald Dallaway Deary, 31 Riverside, Pinelands, Cape, South Africa

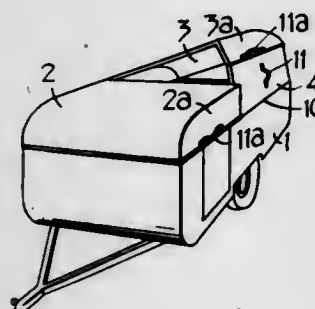
Filed Nov. 13, 1968, Ser. No. 775,432

Claims priority, application South Africa, Nov. 20, 1967, 67/6939

Int. Cl. G60p 3/34

U.S. Cl. 296-27

8 Claims



To facilitate erection, the collapsible caravans comprise rigidly paneled sidewalls, end walls and roof, in which walls are divided into two or more separable parts by divisions which in the erected state extend uprightly and in which the roof is correspondingly divided by divisions essentially forming continuations of the wall divisions. The divisions in the roof may be slightly offset in the longitudinal direction with relation to the corresponding divisions in the walls. Erection or collapsing proceeds sectionwise.

3,574,390

APPARATUS FOR MAKING VEHICLE BODIES

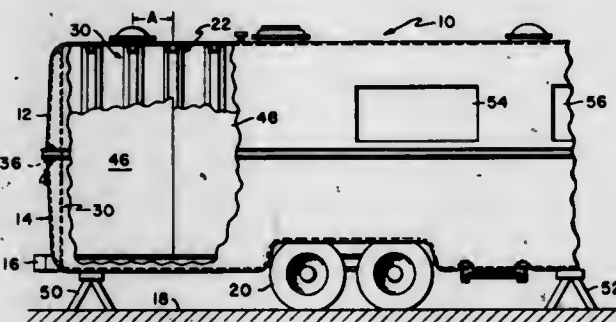
William E. Metsker, Tulsa, Okla., assignor to Avco Corporation, Tulsa, Okla.

Filed May 1, 1969, Ser. No. 820,729

Int. Cl. B62d 39/00

U.S. Cl. 296-28

6 Claims



The disclosure illustrates a trailer vehicle formed from upper and lower molded shells. A series of lateral roof braces are positioned at given spacings along the inside roof of the vehicle. The roof braces have recesses in their ends which receive one-piece vertical sidewall braces for reinforcing both the upper and lower shell walls. The sidewall braces are pivoted to a vertical position relative to the trailer shells and fixed to the upper and lower shells. The sidewall braces additionally provide a support for interior wall paneling.

3,574,391

VEHICLE GATE HINGE CONSTRUCTION

Stephen D. Doboze, Lakewood, Ohio, assignor to Scranton Truck Body Equipment Co.

Filed May 26, 1969, Ser. No. 827,775

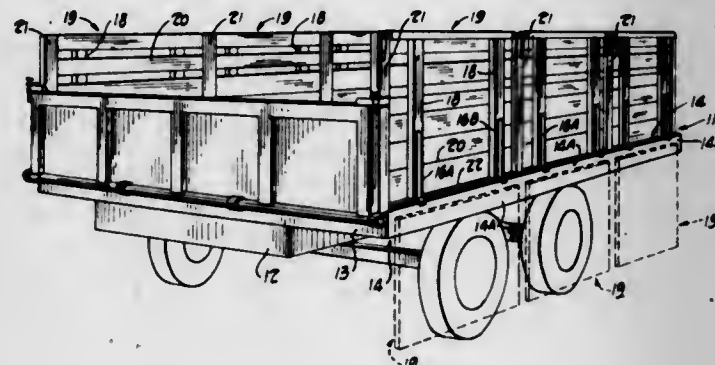
Int. Cl. B62d 25/02

U.S. Cl. 296-36

10 Claims

A vehicle gate hinge construction in which a vehicle frame member disposed along the side of the frame is tubular and

of rectangular cross section, having at the location where the gate hinge is mounted an open space provided in its upper horizontal wall and an open space provided in its outer vertical wall, the open spaces being contiguous at the juncture of the upper horizontal wall and outer vertical wall, a hinge member having a pintle and a pair of leaf members, the pintle being disposed generally inwardly of the tubular member at the juncture of the upper horizontal wall and outer vertical wall, the first of the leaf members being secured to the upper horizontal wall in said open space therein, and the second of the leaf members being secured to



a vehicle gate for swinging of the gate between an upright position and a downward position, the socket for the hinge pintle being disposed in the open space in the outer vertical wall at said juncture between said upper horizontal wall and the outer vertical wall, the second leaf member being offset at a distance from said pintle to extend when disposed uprightly in a plane intermediate the planes of the outer and inward vertical walls of the said frame member.

3,574,392

APPARATUS FOR PREVENTING LIFTING OF WIPER BLADES FROM THE WINDSHIELD OF A VEHICLE AT HIGH SPEEDS OF TRAVEL

Koki Hirano, Fujisawa-shi, Japan, assignor to Jidosha Denki Kogyo Kabushiki Kaisha, Totsuka-ku, Yokohama-shi, Kanagawa-ken, Japan

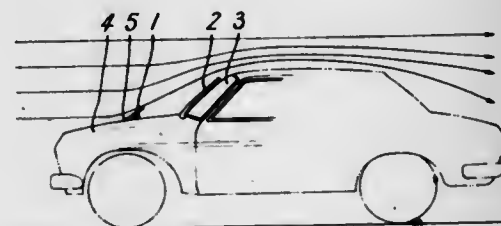
Filed Feb. 19, 1969, Ser. No. 800,558

Claims priority, application Japan, Feb. 24, 1968, 43/11653

Int. Cl. B60j 1/20

U.S. Cl. 296-91

7 Claims



A diverging plate is positioned in front of the windshield of a vehicle for being raised to operative position, when the vehicle reaches a predetermined speed, to divert the airflow from the wiper blades of the vehicle so that the latter can be operated without lifting or floating away from the windshield due to the overflow. The diverging plate is hinged and is connected to a displaceable member which is raised at the predetermined speed to tilt the diverging plate upwardly, whereas when the vehicle slows down to a speed substantially below the predetermined speed, the displaceable member is lowered to retract the diverging plate to inoperative position.

3,574,393

COLLAPSIBLE TABLE

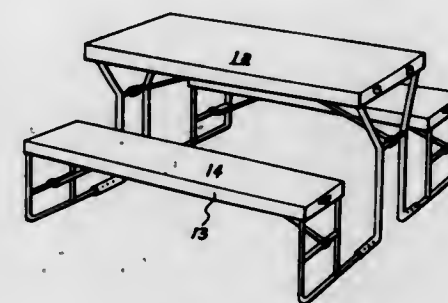
Russell A. Hughes, St. Charles, Mo., assignor to American Air Filter Company, Inc., Louisville, Ky.

Filed Nov. 8, 1968, Ser. No. 774,243

Int. Cl. A47b 37/04

U.S. Cl. 297-157

3 Claims



A collapsible, compact table with bench means releasably attached to the table legs where the benches and the table can be folded into a compact package for storage.

3,574,394

WALL MOUNTED BOOTH

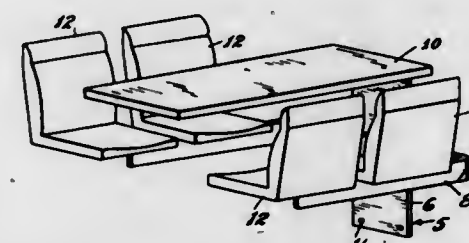
Leslie R. VonPongracz, West Hartford, Conn., assignor to Pon-Sad, Inc., Hartford, Conn.

Filed Nov. 1, 1968, Ser. No. 772,552

Int. Cl. A47b 39/00

U.S. Cl. 297-158

2 Claims



A wall mounted booth particularly intended for restaurants and the like and comprising a unit constructed to include a supporting frame including a bracket adapted to be secured to a wall and having a horizontal table supporting portion and a horizontal U-shaped seat supporting member upon which are mounted a table and a plurality of seats for said booth.

3,574,395

FLOOR MOUNTED BOOTH

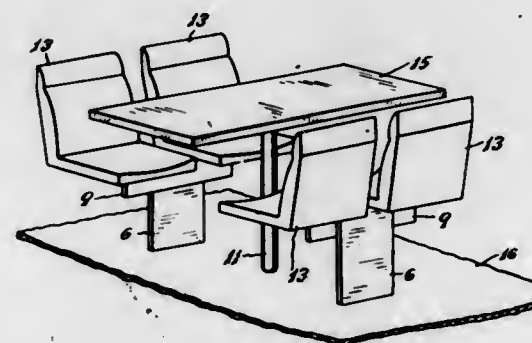
Leslie R. Pongracz, West Hartford, Conn., assignor to Pon-Sad, Inc., Hartford, Conn.

Filed Nov. 1, 1968, Ser. No. 772,656

Int. Cl. A47b 39/00

U.S. Cl. 297-158

5 Claims



A floor-mounted booth particularly intended for restaurants and the like and comprising a self-contained unit

constructed to include a supporting base upon which are mounted the supporting table and a plurality of seats for said booth.

3,574,396

HEAD OR BACKREST AND SAFETY DEVICE FOR CYCLES

Martin J. Bird, Norwalk, Ohio, assignor to Persons-Majestic Mfg., Company, Worcester, Mass.

Filed Apr. 23, 1969, Ser. No. 818,583

Int. Cl. B62j 1/00

U.S. Cl. 297-195

2 Claims



An envelope of head or back cushion receiving the upper end of a U-shaped tubular member which closely fits the envelope and tends to hold it in position, and a two-part button having an element piercing the envelope, said button having a reflective element at least at one side of the envelope and holding the latter against removal from the tubular member.

3,574,397

ORTHOPEDIC PILLOW

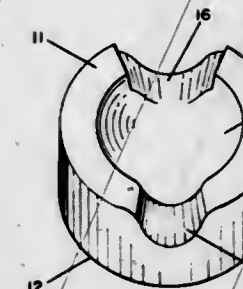
Jan Norriss, 4002 E. Fort Lowell, Tucson, Ariz. 85716

Filed Sept. 11, 1968, Ser. No. 759,126

Int. Cl. A47c 7/38

U.S. Cl. 297-391

4 Claims



An orthopedic pillow for comfortably supporting the head and cervical areas of the user. The pillow is of a resilient material having a generally central concave cavity therein. Oppositely extending from the central concave cavity are contoured depressions to accommodate the user's neck and head. The central cavity is shaped and positioned to accommodate the user's ear without pressure when the user is lying on his side and the cavity partially supports the user's head when the user is lying on his back. One embodiment of the invention is adaptable for use with an automobile seat.

3,574,398

HEAD SUPPORTS FOR USE IN MOVING VEHICLES

Michael C. Hairgrove, 2106 A. Echols, Bryan, Tex. 77801

Filed Nov. 15, 1968, Ser. No. 776,157

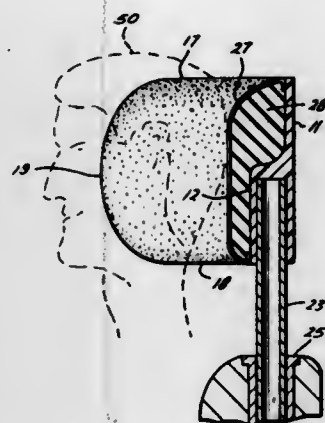
Int. Cl. A47c 7/36, 7/42

U.S. Cl. 297-410

4 Claims

Head supports having portions for supporting the back and each side of the head of a person, particularly for use in moving vehicles, where there is possibility of collision which might throw the person in any direction, and in particular,

might throw the head of the person rearward or sideward with respect to the heavier body of the person, thereby causing damage to the neck. The supports do not bind the



head to a stationary or rigid position, but fit the head loosely enough that the head may turn at least to an extent permitting reasonable freedom of motion and comfort. The side support positions do not limit vision to either side.

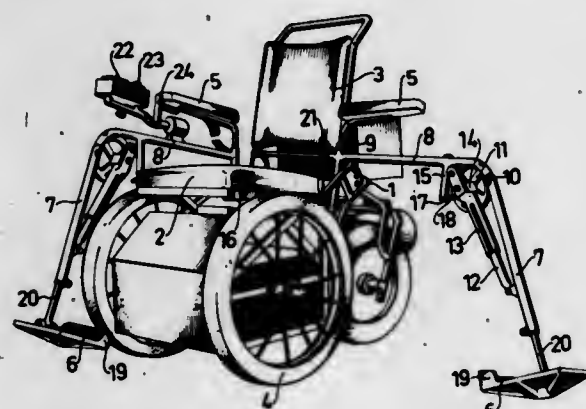
3,574,399

WHEELCHAIR INCLUDING FOOT RESTS AND ARM RESTS

Per Edward Carl Udden, General Delivery, Timra, Sweden
Continuation of application Ser. No. 751,016, June 7, 1968, now abandoned, which is a continuation of application Ser. No. 540,652, Apr. 6, 1966, now abandoned. This application May 15, 1969, Ser. No. 824,905
Int. Cl. A47c 7/54; A47b 83/04

U.S. Cl. 297-429

4 Claims



A wheelchair is provided with a footrest and an armrest at opposite sides thereof. The footrest and armrest on at least one side of the wheelchair are supported by a frame portion which is pivotable around an axis extending substantially perpendicular to an associated supporting surface, and locking means is provided to lock the frame portion in position. The frame portion includes two swingably interconnected parts along with means for adjusting the angle between the parts. The seat and backrest of the wheelchair are pivotable around an axis disposed adjacent the back of the seat and extending substantially parallel with an associated supporting surface.

3,574,400

POLYPROPYLENE ARMCHAIR

Robin Henry Day, Chelsea, London, England, assignor to S. Hille and Company Limited, Watford, Hertfordshire, England

Filed Aug. 9, 1968, Ser. No. 751,507

Claims priority, application Great Britain, Aug. 18, 1967, 38,211/67

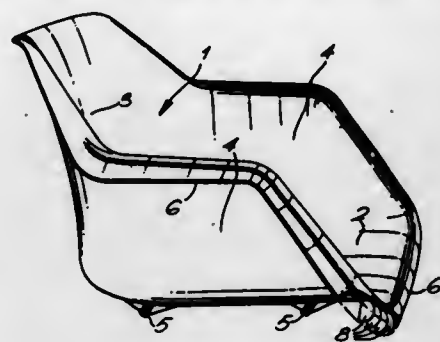
Int. Cl. A47c 3/12, 7/16

U.S. Cl. 297-457

2 Claims

A unitary moulded chair shell forming the seat, back and arms of a chair, provided with a continuous integral rolled

flange forming a channel extending along the under or rear side of at least the front edges of the arm and seal portions of



the shell, and having integral webs extending across said channel in the regions where the arms merge with the seat.

3,574,401

DRIVER'S SEAT FOR MOTOR VEHICLES

Wilhelm Lehner, Kammersbrucker-Strasse 6, Amberg, Oberpfalz, Germany

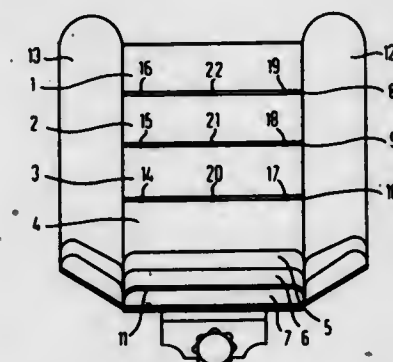
Filed Oct. 23, 1968, Ser. No. 769,966

Claims priority, application Germany, Oct. 23, 1967, P 16 30 736.1

Int. Cl. A47c 7/20, 7/14

U.S. Cl. 297-453

16 Claims



A driver's seat for motor vehicles, preferably for self-propelled implements, such as agricultural tractors, is provided with upholstery on the seat proper and on the backrest. The upholstery is composed of a plurality of independent individual pads.

3,574,402

FRACTURE INITIATION BY DISSOLVING A SOLUBLE FORMATION

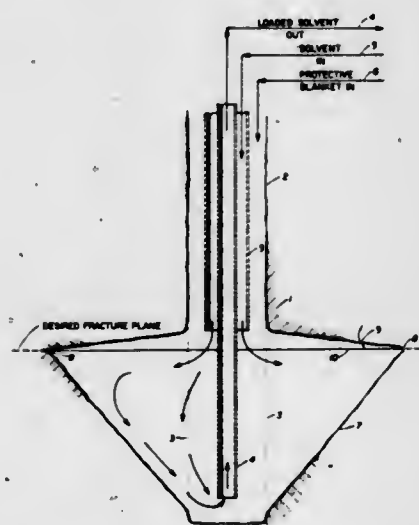
J. G. Davis, II, and Russell W. Ankrom, Ponca City, Okla., assignors to Continental Oil Company, Ponca City, Okla.

Filed Mar. 18, 1969, Ser. No. 808,203

Int. Cl. E21b 43/28

U.S. Cl. 299-5

4 Claims



The point of fracture initiation in a soluble formation is controlled by dissolving from the formation a conical volume

having the base plane of the cone corresponding to the desired fracture plane. The conical volume is formed during the dissolving step by use of an immiscible blanket fluid above the solvent.

3,574,403

CARRIERS FOR LOOPEO CABLES IN MINING INSTALLATIONS

Terence Hubbard, Langley Mill, England, assignor to Perard Engineering Limited

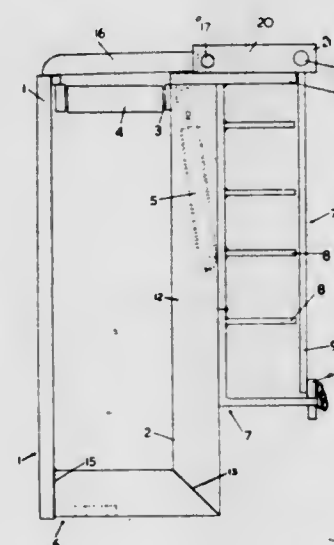
Filed Jan. 22, 1969, Ser. No. 792,940

Claims priority, application Great Britain, Jan. 26, 1968, Apr. 10, 1968, 04101/68; 17351/68

Int. Cl. E21c 29/04

U.S. Cl. 299-19

14 Claims



A carrier for looped cables used to supply power and water to mining machines which transverse to and fro along a mineral face. A number of carriers are attached to a spill plate or clevis rail each carrier having a pivotally mounted gate biased in a closed position. Looped cables can be enclosed within the bracket under the gate to avoid damage of the cables by, for example, flapping of a haulage chain.

3,574,404

DIGGING APPARATUS

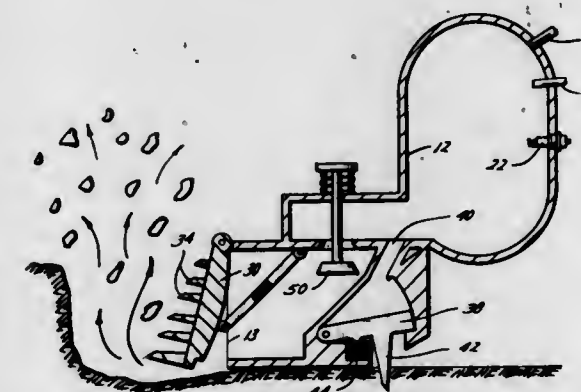
Thomas J. Hogan, San Antonio, Tex., assignor to H. B. Zachry Company, San Antonio, Tex.

Filed May 12, 1969, Ser. No. 823,626

Int. Cl. E21c 29/00

U.S. Cl. 299-37

5 Claims



An improvement in an apparatus for creating repetitive explosions from an outlet of a combustion chamber by actuating a digging assembly by the explosive pressures to loosen and break up hard materials. The use of piston-driven digging teeth for loosening and breaking up material formations both prior to and simultaneously with material displacement by repetitive explosive blasts. An apparatus positioning locking assembly including a piston-driven pin

3,574,405

APPARATUS FOR CONTINUOUS EXCAVATION OF TUNNELS

Takao Shimada, Kanagawa-Ken; Tsutae Honma, Tokyo-to; Mamoru Minemoto, Tokyo-to, and Hiroshi Kinbara, Gifu-ken, Japan, assignors to Nippon Kokyu Tetsudo, Tokyo-To, Japan

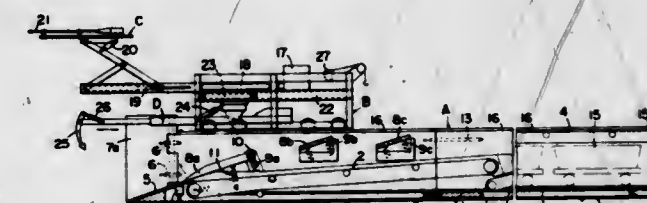
Filed Mar. 12, 1969, Ser. No. 806,491

Claims priority, application Japan, Mar. 15, 1968, 43/16508

Int. Cl. E21c 35/20; E01g 3/06

U.S. Cl. 299-64

8 Claims



A method and apparatus for continuous excavation of tunnels characterized in that: the front portion of a channel-shaped main structure of the apparatus, having a U-shaped cross section and consisting of side plates and a bottom plate, is allowed to advance to a confronting position to the facing of the tunnel; a drilling device freely movable on the upper part of the apparatus is advanced along the length of the main structure so that holes are bored in the facing of the tunnel to accommodate explosives; after detonation of the explosives, a mucking device provided on the front part of the main structure removes the resulting muck rearwardly; conveyors transport the muck through the main structure; and the main structure is again advanced forwardly for further mucking and drilling holes in the facing of the tunnel.

3,574,406

ELASTOMERICALLY COVERED BUMPER

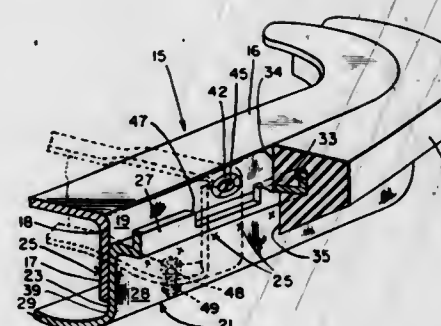
Henry W. Wessells, III, Paoli, Pa., assignor to The Budd Company, Philadelphia, Pa.

Filed Dec. 11, 1968, Ser. No. 783,085

Int. Cl. B60r 19/08; B61f 19/04; B63b 59/02

U.S. Cl. 293-71

6 Claims



Bumper structure having a top member welded to a bottom member with an outstanding flange for securing a resilient rubber facing strip which contacts the outer surfaces of the members. The top and bottom members are welded so that moisture which may bleed from the weld construction drains along the inner surface of the bottom member. The formation of rust streaks on the chrome outer finish is thereby minimized.

3,574,407

WHEEL COVER

Howard E. Oathout, Grendada, Miss., assignor to North American Rockwell Corporation, Pittsburgh, Pa.
Filed June 20, 1969, Ser. No. 835,071
Int. Cl. B60b 7/06

U.S. Cl. 301—37

11 Claims



A wheel cover for a conventional automotive wheel including an axially extending cylindrical mounting flange supporting a plurality of circumferentially extending metal tooth members formed to provide at each end a generally radially outwardly projecting sharp-pointed tooth engaging an axially extending generally cylindrical flange on the wheel rim, the central portion of each of the tooth members being bent at a large obtuse angle to provide two flat halves each being centrally tangential to the mounting flange and being secured thereto, the clearance between the tooth members and the mounting flange at either side of such points of tangency, in combination with width reducing cutouts preferably provided in the tooth members intermediate the points of tangency, permitting flexing and twisting of the tooth members to facilitate installation of the wheel cover on the wheel and prevent removal of the wheel cover.

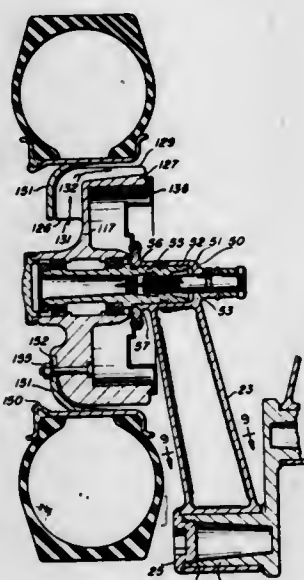
3,574,408

VEHICLE WHEEL MOUNTING ASSEMBLY

Adolph Ronning, 4826 E. Weldon Ave., Phoenix, Ariz.
Filed Oct. 1, 1968, Ser. No. 764,050
Int. Cl. B60b 35/06

U.S. Cl. 301—132

5 Claims



A vehicle wheel mounting assembly is positioned on a pivoted spring-loaded arm secured to a vehicle frame. Two identical assemblies are mounted adjacent each other but displayed longitudinally along the longitudinal axis of the vehicle. The assembly is reversible and is therefor interchangeable without variation. The wheel mounting assembly includes a wheel spindle carrier formed integrally at one end of one of the spring-loaded pivoted arms. The spindle carrier includes at the end remote from the vehicle frame an opening extending therethrough having an axis substantially horizontal and extending substantially transverse to the longitudinal axis of the vehicle. A wheel spindle is inserted in one end of the opening in the spindle carrier and includes a shoulder for abutting the periphery of the opening. An ejector shaft extends into the carrier from

the opposite end and threadably engages the wheel spindle. The spindle supports wheel bearings and a hub including a brake drum thereon to which a wheel and tire may be secured.

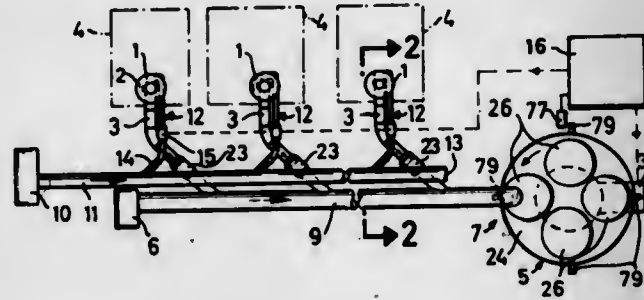
3,574,409

APPARATUS FOR TRANSPORTING TEXTILE GOODS OR THE LIKE

Joachim Furstenberg, Esslingen, Germany, assignor to LTG Lufttechnische Gesellschaft Mit Beschränkter Haftung, Stuttgart, Zuffenhausen, Germany
Filed Sept. 16, 1968, Ser. No. 760,001
Claims priority, application Germany, Sept. 22, 1967, P 15 56 604.8
Int. Cl. B65g 53/00

U.S. Cl. 302—2

18 Claims



Apparatus for transporting stockings or other textile goods from one or more textile machines to a series of receptacles at a collecting station comprises a motor which indexes the receptacles into registry with the discharge end of a pneumatic duct which communicates with feed conduits each of which can receive goods from one output of a corresponding machine and is normally sealed by a one-way valve. Injectors cooperate with the feed conduits to admit into such conduits compressed air which can cause opening of one-way valves and delivery of goods from the corresponding machines into the duct for transfer into a selected receptacle. The pressure of air in the duct is less than the pressure of air which is admitted by the injectors. The injectors can be grouped, and their operation is regulated by a single control unit which also regulates the operation of the indexing motor for the receptacles.

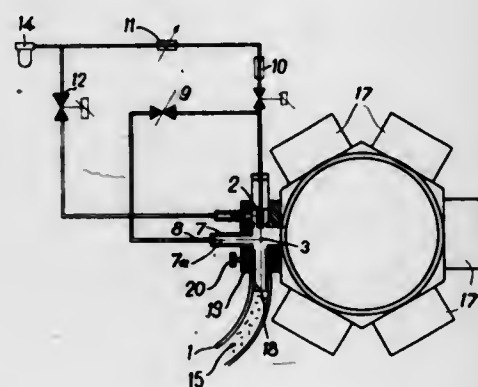
3,574,410

PNEUMATIC CONVEYER SYSTEM

Karl Buschor, St. Gallen, Switzerland, assignor to Gema AG Apparatebau, St. Gallen, Switzerland
Filed May 5, 1969, Ser. No. 821,712
Claims priority, application Austria, May 6, 1968, A4319/68
Int. Cl. B65g 53/04

U.S. Cl. 302—28

9 Claims



A pneumatic conveyor system particularly intended for feeding pulverulent and granular coating materials to electrostatic spraying devices. The coating material is supplied from a loading hopper and a distributing chamber to a plurality of diffusers to which a propellant gas is supplied.

The diffusers are arranged circumferentially about the distributing chamber and each diffuser is connected to a separate conveyor line leading to an individual spraying device for simultaneous operation of a plurality of spraying devices.

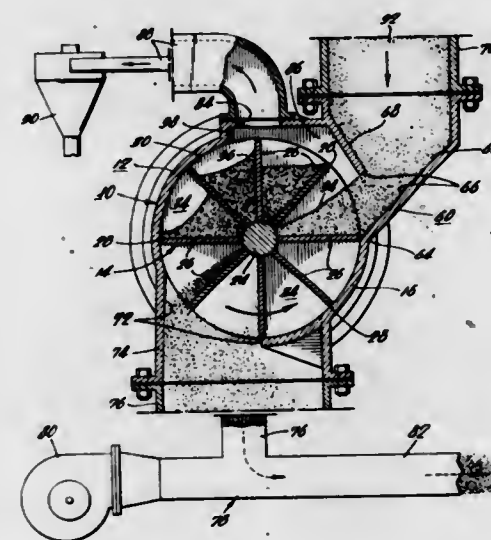
3,574,411

SIDE INLET ROTARY VALVE

Claude J. Miller, Muncy, Pa., assignor to Sprout, Waldron & Company, Inc., Muncy, Pa.
Filed Jan. 15, 1969, Ser. No. 791,434
Int. Cl. B65g 53/40

U.S. Cl. 302—49

4 Claims



A side inlet rotary valve for delivery of particulate material into a pneumatic conveyor system characterized by a vane-type rotor mounted for rotation about a horizontal axis in a generally cylindrical casing; the casing includes a downwardly opening outlet port connected to the pressurized system, a side inlet for introducing the material into the rotor chambers, and a pressure relief port above said side inlet for relief of pressure carried by the rotor chambers into the inlet region.

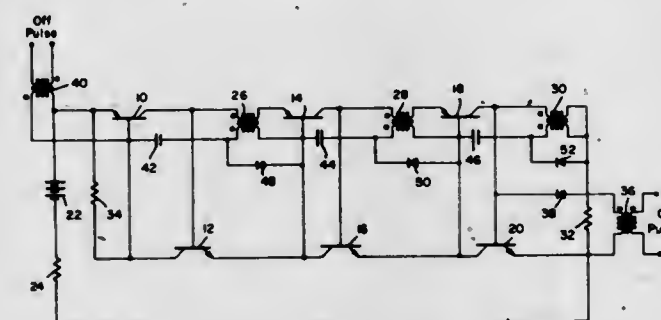
3,574,412

CAPACITOR-TRANSFORMER VOLTAGE EQUALIZATION NETWORK FOR SERIES CONNECTED TRANSISTOR SWITCHES

Joe V. Stover, and Thomas J. Fox, Fullerton, Calif., assignors to Hughes Aircraft Company, Culver City, Calif.
Filed June 6, 1968, Ser. No. 735,097
Int. Cl. H03k 17/00, 1/12

U.S. Cl. 302—255

8 Claims



During the turnoff transition of series connected complementary transistor pair switches against a voltage in excess of the permissible standoff voltage of any one switch, it becomes necessary to equalize the voltage drop across each switch. Such equalization is accomplished by connecting a capacitor between the collector and base of each transistor in a complementary pair switch, with the capacitor having a larger displacement current than the collector current of that transistor. In this way, the rate of

change of the collector to base voltage is maintained substantially equal between the several series connected transistors. This maintains substantially equal standoff voltage in each transistor during rise and fall times, providing transistor storage times are equal and turnoff signals are received at the same time. In order to overcome this potential cause of excessive voltage against any complementary pair transistor switch, pulse transformers are connected with one coil in series with the capacitor and the other coil in series with the emitter of the majority current carrying transistor so that the capacitive displacement current provides a voltage pulse in series aiding with the base-to-emitter voltage of the minority current carrying transistor to slow the transition speed of the succeeding complementary transistor pair switch first turning off and to allow its transition speed to approach that of the slower transition speed switch elements.

3,574,413

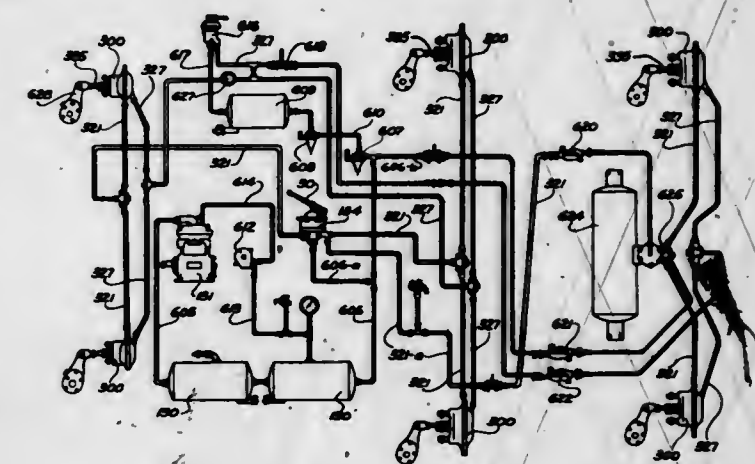
BRAKE SYSTEM FOR VEHICLES

Arthur B. Euga, 728 1/2 Franklin Ave., Columbus, Ohio
Continuation of application Ser. No. 788,480, Jan. 6, 1959, now abandoned, which is a division of application Ser. No. 564,315, Feb. 8, 1956, now Patent No. 2,871,827, which is a continuation-in-part of application Ser. No. 176,785, July 31, 1950, now abandoned. This application Apr. 29, 1963, Ser. No. 282,525

Int. Cl. B60t 13/36

U.S. Cl. 303—7

2 Claims



A dual reservoir airbrake system wherein both a main fluid pressure system and an auxiliary fluid pressure system can supply pressure to a first and second movable wall motor. The disclosure particularly relates to brake systems where valve-protected reservoir pressure supplant each other to produce from such a motor push rod pressure when the main or auxiliary brake pressure system becomes disabled failing temporarily or completely.

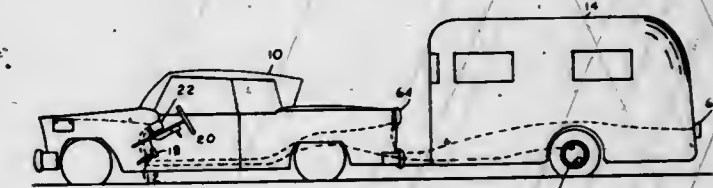
3,574,414

BRAKE CONTROL SYSTEM FOR A TRACTOR DRAWN TRAILER

Keith D. Jacob, 2321 South Circle Drive, Ann Arbor, Mich.
Filed Oct. 16, 1968, Ser. No. 768,062
Int. Cl. B60t 13/74

U.S. Cl. 303—7

8 Claims



The electric brakes of a tractor drawn trailer are controlled by a force sensor so positioned that pressure applied by the foot of the driver during actuation of the tractor brake pedal also operates the sensor. The electrical

system thus activated is independent of the tractor braking system. Solid state devices are used in preference to switches or contractors, and included are effective means for voltage control. Such arrangement provides adjustable braking force proportional to the tractor braking force, relative braking adjustment, variable maximum braking, and automatic operation after adjustment.

ERRATUM

For Class 303—21 see:
Patent No. 3,574,426

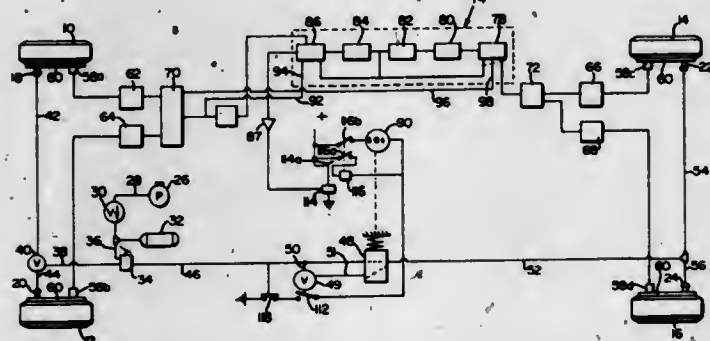
3,574,415

BRAKE SYSTEM

Alex F. Stamm, Rochester, Mich., assignor to Rockwell-Standard Company, Pittsburgh, Pa.
Filed Aug. 26, 1968, Ser. No. 755,076
Int. Cl. B60t 8/08

U.S. Cl. 303—21

9 Claims



An automotive braking control system in which the rotational velocity of one set of wheels, usually the rear wheels is compared with the rotational velocity of another set of wheels, usually the front wheels, and a signal is generated when a velocity difference is detected during braking action, the signal being effective to reduce the braking effort supplied to the slower wheels, the braking effort at the slower wheels thereafter being a fixed percentage of the braking effort at the faster wheels or being a fixed value sufficiently low to avoid locking the slower wheels.

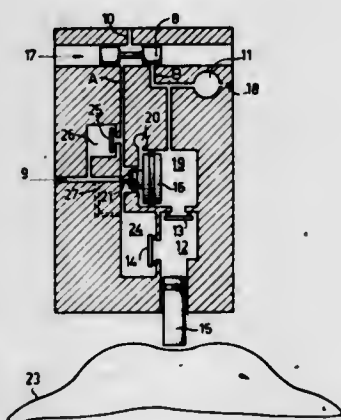
3,574,416

ANTILOCK BRAKE SYSTEMS

Derek Robert Skoyles, East Grinstead, England, assignor to U. S. Philips Corporation, New York, N.Y.
Filed Oct. 29, 1968, Ser. No. 771,561
Claims priority, application Great Britain, Oct. 31, 1967, 49462/67
Int. Cl. B60t 8/02

U.S. Cl. 303—21

3 Claims



An antilock hydraulic brake control system for a wheeled vehicle. A first control valve actuated by a wheel speed-reduction sensor in response to wheel locking, operates to

relieve the pressure in the brake cylinder by diverting the brake fluid to a reservoir, which fluid closes a second valve controlling the hydraulic flow from the master cylinder. Upon resumption of the wheel rotation a scavenging pump in communication with the reservoir, will be activated and the fluid pressurized by the pump will open the second valve so as to permit hydraulic pressure from the master cylinder to be reapplied to the brake cylinder.

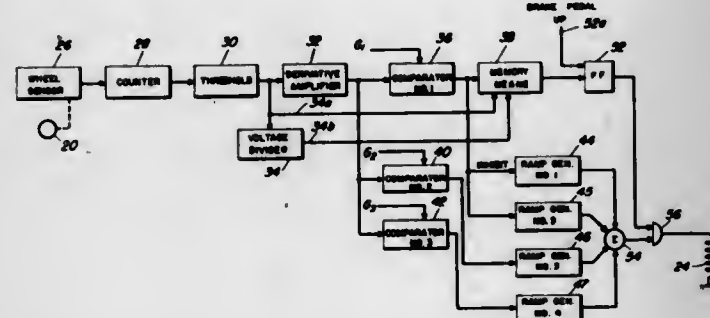
3,574,417

FULL POWER ADAPTIVE BRAKING SYSTEM FOR USE WITH A PROPORTIONAL SOLENOID

Donald W. Howard, South Bend, Ind., and Ralph W. Carp, Baltimore, Md., assignors to The Bendix Corporation
Filed May 13, 1969, Ser. No. 824,173
Int. Cl. B60t 8/08

U.S. Cl. 303—21

37 Claims



An adaptive braking system for automotive vehicles and the like having full power hydraulic fluid brakes wherein the rotational speed of a wheel whose braking characteristics are to be controlled is electrically sensed and a DC voltage level proportional to wheel acceleration derived therefrom in an adaptive braking system control channel. Wheel acceleration is compared to various reference levels corresponding to predetermined values of wheel acceleration so as to generate error signals. The error signals are applied to voltage ramp generators which are thus energized to generate ramp voltages across a normally open proportional solenoid valve. The solenoid valve is interposed in the hydraulic fluid line between the braking system control valve and the controlled wheel and in response to the ramp voltages acts to modulate the hydraulic fluid pressure transmitted by the braking system control valve to the wheel brake cylinders.

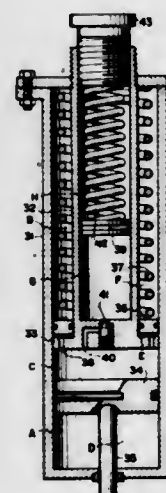
3,574,418

SHOCK ABSORBER FOR ENDLESS-TRACK-TYPE TRACTORS AND THE LIKE

Nobuya Okabe, Tokyo, Japan, assignor to Hitachi, Ltd., Tokyo-To, Japan
Filed Feb. 7, 1969, Ser. No. 797,638
Claims priority, application Japan, Feb. 7, 1968, 43/7162
Int. Cl. B62d 55/30

U.S. Cl. 305—10

10 Claims



A shock absorber for the endless track of a vehicle providing three oil cylinders, namely, an actuating cylinder

responsive to shock motion, a shock-absorbing cylinder and a tension-adjusting cylinder and means for controlling the flow of fluid to these cylinders so that when any shock motion is applied to the actuating cylinder, the oil within the oil-filled chamber of the cylinder is forced to flow into the shock-absorbing cylinder, whereby the shock motion can be absorbed; whereas, if the endless track becomes loose, the oil within the oil-filled chamber of the tension-adjusting cylinder is forced to flow into the oil-filled chamber of the actuating cylinder, whereby the tension of the endless track belt can be recovered.

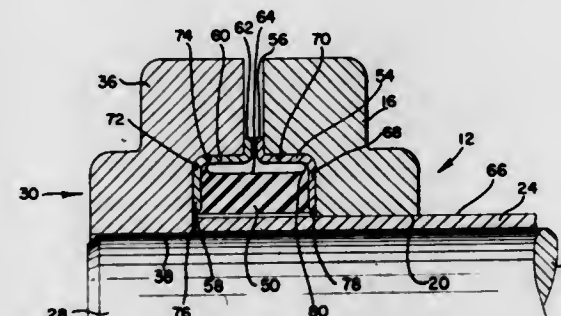
3,574,419

TRACK PIN SEAL

Seymour A. Hatch, Maywood, Ill., assignor to Chicago Rawhide Manufacturing Company, Chicago, Ill.
Filed Mar. 14, 1968, Ser. No. 713,077
Int. Cl. B62d 55/20

U.S. Cl. 305—11

4 Claims



A protective seal unit for retaining grease in, and excluding abrasive particles from a track pin connecting two or more links, which, when connected together, form an endless crawler track for a track-laying vehicle. The seal includes first and second collar members, each having radially and axially extending flanges and an elastomeric torsional deflection sealing element extending between the two radially extending flanges, connecting the two collars, and being spaced apart from the axially extending portions of the collars. Each collar is held in fixed relation relative to the link member with which it is associated, and the links are oscillated in relation to each other when the track moves over a drive sprocket or an idler.

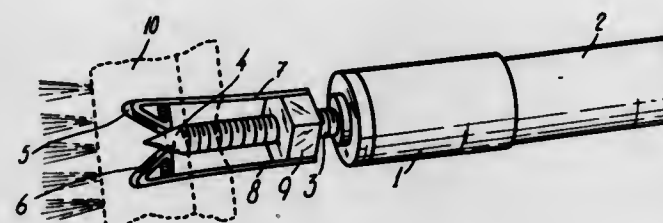
3,574,420

DEVICE FOR SECURING HANDLES TO CLEANING ELEMENTS OR THE LIKE

Ladislao Waldmann, Pontela 2968, Buenos Aires, Argentina
Filed July 30, 1969, Ser. No. 846,175
Int. Cl. B25g 3/20

U.S. Cl. 306—29

1 Claim

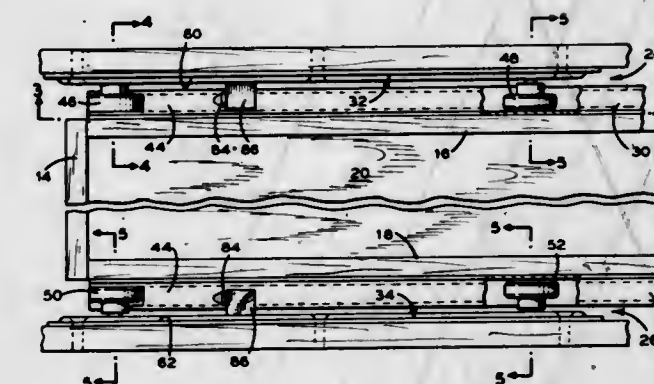


A device for securing a handle to a cleaning element provided with a cavity in which a threaded stem having a tapering free end projects coaxially fixed from the handle and engages between inwardly bent free end portions of a pair of opposite flexible arms fixed at the other ends thereof to a nut threadingly connected to the stem so that the arms may be radially expanded in the region of the free end portions thereof during rotation of the stem and the nut relative to each other in one direction to thereby connect the handle to a cleaning element when said end portions during such rotation are located in a cavity of the cleaning element.

3,574,421
DRAWER SLIDE ASSEMBLY
Robert R. Stein, Mamaronck, and Stanley H. Coe, Sloatsburg, N.Y., assignors to Instrument Systems Corporation, Nyack, N.Y.
Filed Aug. 27, 1969, Ser. No. 853,323
Int. Cl. A47b 88/04

U.S. Cl. 308—3.8

10 Claims



A drawer slidably coupled to a cabinet by drawer slides which do not jam or bind when subjected to offcentered opening or closing forces, each drawer slide coupling a side of the drawer to the case or cabinet through two rollers which ride along tracks; one of the rollers being wider than the other rollers to more clearly define the axial displacement of the drawer relative to the cabinet.

3,574,422

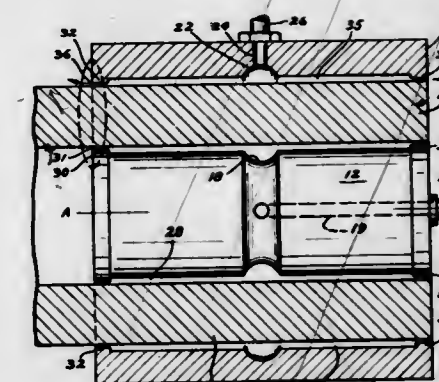
EXTERNALLY PRESSURIZED INTERMEDIATE ROTOR STRUCTURE

Harold E. G. Arneson, Theodore J. Arneson, Jr., Minneapolis, Minn., and John H. Whitmore, Binghamton, N.Y., assignors to Harold E. G. Arneson, Minneapolis, Minn. and Theodore J. Arneson, Jr., South Minneapolis, Minn.

Filed July 11, 1969, Ser. No. 840,943
Int. Cl. F16c 17/16

U.S. Cl. 308—9

7 Claims



An externally pressurized self-compensating bearing structure consisting of a rotor intermediate an internal and an external stator having a common axis therewith, said rotor having a restrictive clearance with respect to said internal stator and an initially lesser restrictive clearance with respect to said external stator, means supplying pressurized fluid through said stators to said clearances whereby in operation said rotor by centrifugal expansion rows to increase said first-mentioned clearance beyond a suitable working clearance and to reduce said second-mentioned clearance to a suitable working clearance.

3,574,423

SHEAVE WITH LUBRICANT RESERVOIR

John Stevenson Thomson, 104 Forsyth St., Greenock, Scotland

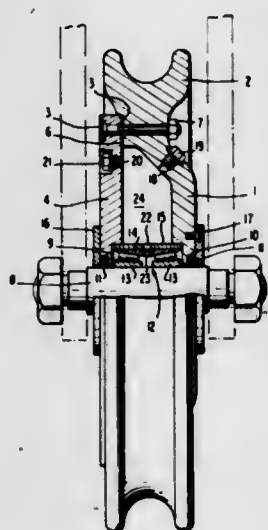
Filed May 5, 1969, Ser. No. 822,061

Claims priority, application Great Britain, May 4, 1968, 21,228/68

Int. Cl. F16c 13/00

U.S. Cl. 308—18

2 Claims



A circular dished member having a grooved rim and provided with a circular cover enclosing the concavity of the dished member to form an annular reservoir for retaining a relatively large quantity of lubricant to be supplied to the centrally disposed bearing of the sheave formed by or held in position by the dished member and/or circular cover.

3,574,424

AXIALLY LOADED BEARING

Klaus Hagemeyer, Munchen-Pasing, Germany, assignor to M. A. N. Turbo G.m.b.H., Munich-Allach, Germany

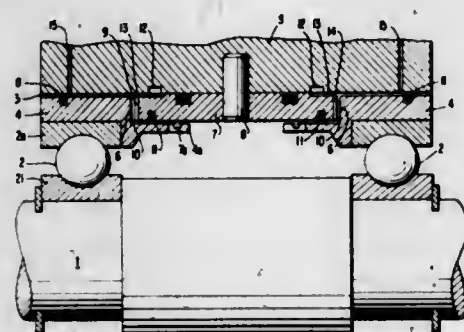
Filed Feb. 20, 1969, Ser. No. 800,841

Claims priority, application Austria, Feb. 23, 1968, A1759/68

Int. Cl. F16c 33/00

U.S. Cl. 308—189

11 Claims



An axially loaded bearing, in which the axial load is produced hydraulically.

3,574,425

FABRICATION OF HOLLOW BALLS, FOR USE AS BALL BEARINGS, FROM POWDER

Henry A. Johnson, 624 Daleview Ave., Dayton, Ohio, and Gabe L. Campbell, Wayne Lakes Park, Greenville, Ohio

Filed June 25, 1969, Ser. No. 836,359

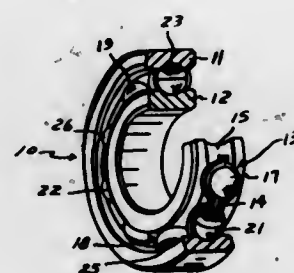
Int. Cl. F16c 19/20

U.S. Cl. 308—200

5 Claims

A hollow ball structure, for use in a ball bearing application, having two half shells constructed of powdered material made porous to absorb a lubricant therewithin to be automatically exuded onto the surface of the bearing and

bearing races, and thereby provide a self-lubrication feature to the structure. The powdered ball bearing may be utilized



in a bearing assembly in alternate relation with both solid and other types of hollow ball structures to thereby provide both strength, flexibility and lubrication.

3,574,426

SKID CONTROL SYSTEM

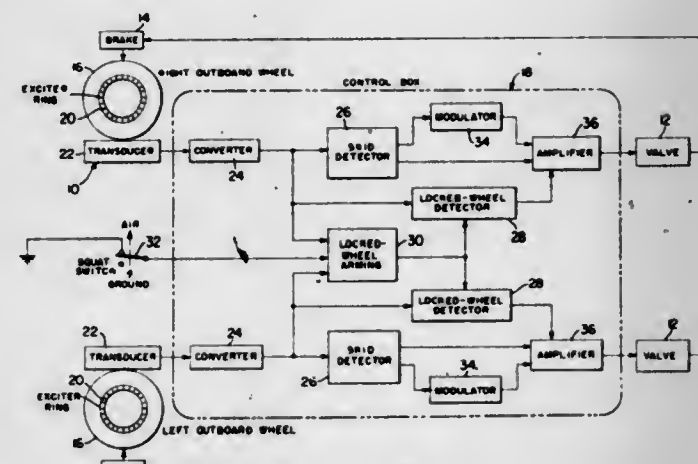
Edgar J. Ruof, Akron, Ohio, assignor to The Goodyear Tire & Rubber Company, Akron, Ohio

Continuation of application Ser. No. 814,865, Jan. 16, 1969, which is a continuation of application Ser. No. 593,150, Nov. 9, 1966, now abandoned. This application Oct. 27, 1969, Ser. No. 871,512

Int. Cl. B60t 8/08, 13/66

U.S. Cl. 303—21

21 Claims



An antiskid brake control system particularly designed for aircraft which includes a hydraulic braking pressure supply to each wheel with independent valves to adjustably restrict the hydraulic pressure actually applied to each wheel. An electrical voltage is generated by wheel rotation indicating the rate of rotation. The balance of a normally balanced bridge circuit is upset sometime after this voltage begins to change at an excessive rate indicative of a skidding deceleration and then causes a signal to be sent to the respective independent valve associated with the wheel to restrict the hydraulic pressure to the respective brake. The lag between the onset of a skidding deceleration and the time at which the balance of the bridge is upset directly depends upon the severity of the skid.

3,574,427

PIVOT CONSTRUCTION

James K. Faull, 16 Walker Court, Poland, Ohio

Filed Apr. 3, 1969, Ser. No. 813,250

Int. Cl. F16c 17/04

U.S. Cl. 308—135

4 Claims

A pivot construction for a swivel device having a pair of platelike members in face-to-face relation relatively rotatable

about the pivot axis. The novel pivot construction includes a shouldered pivot pin anchored to one of the members and

provided with a cutout opening suitable to receive a sewing machine head. The hinge is secured adjacent to the opening and includes a pair of pivotal elements which are adapted for



spaced from the other member by low friction bodies, one of which is keyed to the other member to insure unitary movement therewith.

3,574,428

FABRICATION OF HOLLOW BALLS, CONTAINING HEAT SINK MATERIAL, FOR BEARINGS

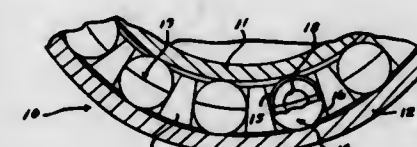
Henry A. Johnson, 8151 Inwood Ave., Dayton, Ohio, and Gabe L. Campbell, Wayne Lakes, Greenville, Ohio

Filed July 8, 1969, Ser. No. 839,931

Int. Cl. F16c 13/02

U.S. Cl. 308—195

7 Claims



A hollow ball, or roller bearing structure fabricated from a pair of half shell members, each of which incorporates a heat sink for absorbing the heat developed during the operation of the bearing structure and thereby prolonging the bearing wear life capability.

3,574,429

LOW FRICTION BEARING AND METHOD FOR MAKING SAME

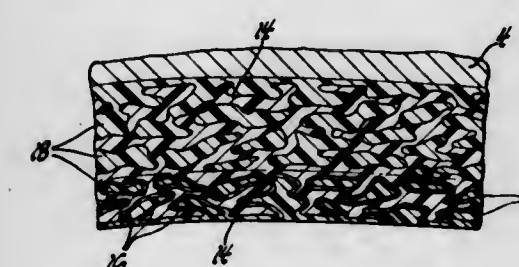
Paul J. Reising, Birmingham, Mich., assignor to Lear Siegler, Inc., Santa Monica, Calif.

Filed June 6, 1969, Ser. No. 831,066

Int. Cl. F16c 27/00; B29d 7/20; E06b 3/92

U.S. Cl. 308—238

22 Claims



In accordance with the invention a bearing is provided with a low friction slide surface which is formed of an open-celled resin foam impregnated with another resin, one of the resins being of relatively high lubricity, preferably polytetrafluorethylene, and the other being a resin of greater strength and hardness, the foam being sufficiently filled and compressed to provide a slide surface of high density.

3,574,430

COMPOUND HINGE FOR CONNECTING SEWING MACHINE HEAD TO SEWING MACHINE CABINET

Manfred Merz, Montreal, Quebec, Canada, and John A. Fitzwater, Oak Park, Ill., assignors to Sears Roebuck and Co., Chicago, Ill.

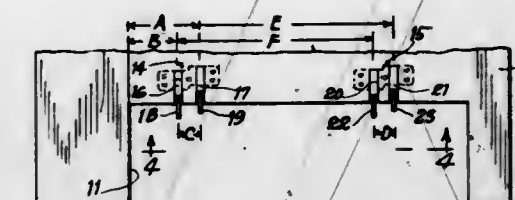
Filed Nov. 26, 1969, Ser. No. 880,143

Int. Cl. A47b 81/00

U.S. Cl. 312—21

6 Claims

A compound hinge for connecting a sewing machine head to a sewing machine cabinet having a top surface panel



selective engagement with sewing machine heads having different base sizes so that a single cabinet will accommodate different size sewing machine heads.

3,574,431

CONTINUOUS ROLL TOWEL DISPENSER

Charles A. Henderson, Appleton, Wis., assignor to Kimberly-Clark Corporation, Neenah, Wis.

Filed Dec. 23, 1968, Ser. No. 785,890

Int. Cl. B65h 19/00

U.S. Cl. 312—38

9 Claims



A continuous roll towel dispenser including an upper cabinet for housing a clean towel roll and a lower cabinet for housing a used towel roll. The two cabinets are vertically spaced from each other so that a length of towel extending from the clean towel roll in the upper cabinet to the used towel roll in the lower cabinet is exposed between the cabinets. The exposed length of towel between the cabinets is spaced a substantial distance away from the rear walls of the cabinets so that both sides of the exposed length of towel are readily accessible to the user. A first driving roll in the upper cabinet is driven in response to withdrawal of towel from the clean towel roll, and is connected through a chain and sprocket mechanism to a second drive roll in the lower cabinet for automatically driving the used towel roll each time a new length of clean towel is withdrawn. Each of the upper and lower cabinets includes a hinged wall portion for providing access to the towel rolls contained therein. A takeup rod is included in the lower cabinet for automatically drawing any slack towel into the lower cabinet after each driven movement of the used towel roll. A modified embodiment is disclosed in which an actuator must be operated by the user to permit the withdrawal of clean towel, and the length of towel that can be withdrawn following each operation of the actuator is limited to a predetermined length.

3,574,432

ARTICULATED JOINT-CONNECTING STACKABLE FILE TRAYS

Robert Hansmann, Kleistgasse 21, Vienna, Austria

Filed Feb. 27, 1969, Ser. No. 802,869

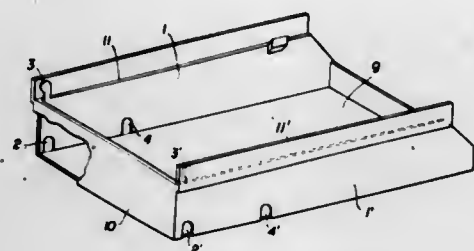
Int. Cl. F16b 12/00

U.S. Cl. 312—111

7 Claims

A stackable file tray assembly wherein the trays are fitted within one another. The upper edges of the longitudinal walls

of each tray have, toward their rear wall, heads projecting from the ledges designed to support the next higher tray.

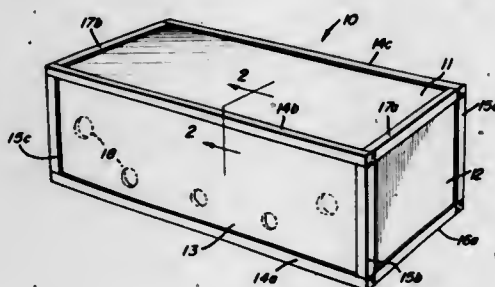


in a desk top. The desk top is slidably fixed to the support through opposing U-shaped channels having ball bearings therebetween. The bin is supported beneath the desk top so as to permit access thereto by sliding the top between alternate positions.

3,574,435
REMOVABLE SHELF-SUPPORTING POST
Louis F. Barroero, 1585 Daniels Drive, San Leandro, Calif.
Filed Nov. 29, 1968, Ser. No. 780,146
Int. Cl. A47b 49/00
U.S. Cl. 312-305 1 Claim

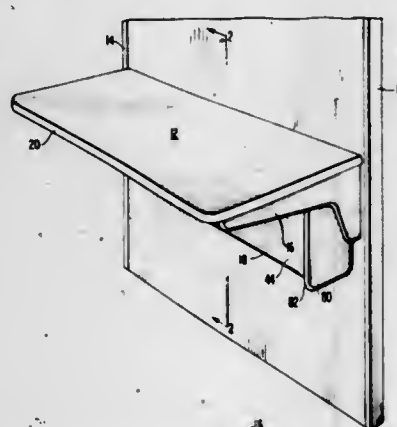
These heads are received in recesses formed in the lower edges of the longitudinal walls to allow the upper trays to pivot on the lower trays.

3,574,433
CABINET
Robert C. Bell, Centereach, N.Y., assignor to Eiko Electronic Instrument Co., Inc., Brooklyn, N.Y.
Filed Mar. 13, 1969, Ser. No. 806,791
Int. Cl. A47b 47/00, 87/02
U.S. Cl. 312-111 8 Claims

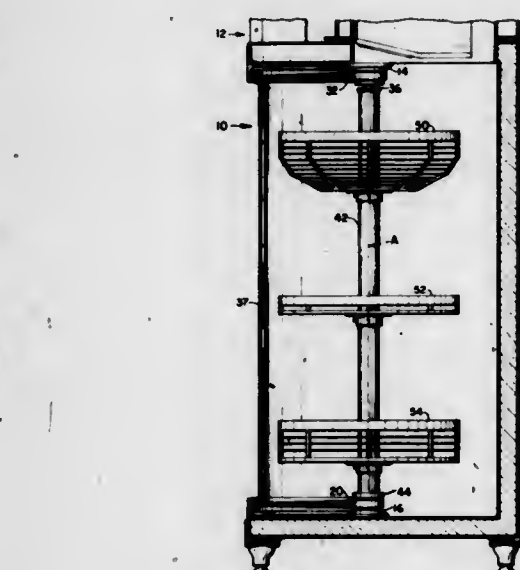


A cabinet consisting of essentially rectangular, substantially rigid top and bottom panels; four substantially rigid side panels; and, as the sole means for supporting the panels, a plurality of relatively nonelastic, essentially rigid connecting elements, each having two longitudinally extending grooves into which two edges of the respective adjacent bottom and side, top and side, and pairs of side panels are removably force fit.

3,574,434
DESK WITH SLIDABLE TOP
Robert L. Propst, Ann Arbor, and Peter J. Protzmann, Grand Rapids, Mich., assignors to Herman Miller Inc., Zeeland, Mich.
Filed Nov. 13, 1968, Ser. No. 775,267
Int. Cl. A47f 5/08; A47b 27/00
U.S. Cl. 312-245 1 Claim

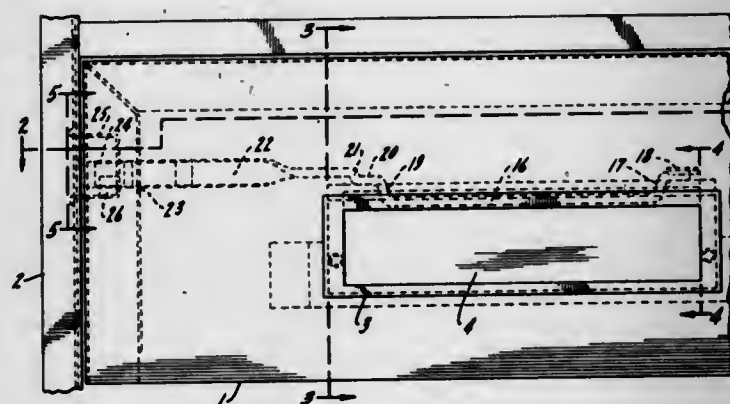


This disclosure relates to a desk assembly in which a support such as wall hung brackets mounts an open top bin



For use in a display case or the like, a vertical tubular post is disposed and supported therein by a member downwardly extending from the top of the case into the top of the post, and a member upwardly extending from the bottom of the case into the bottom of the post. The post may be removed from the case by moving it axially upward until the bottom end thereof is free of the associated upwardly extending member, and then swinging the bottom end thereof laterally. Means are included for selectively limiting the axial upward movement of the post when it is supported within the case.

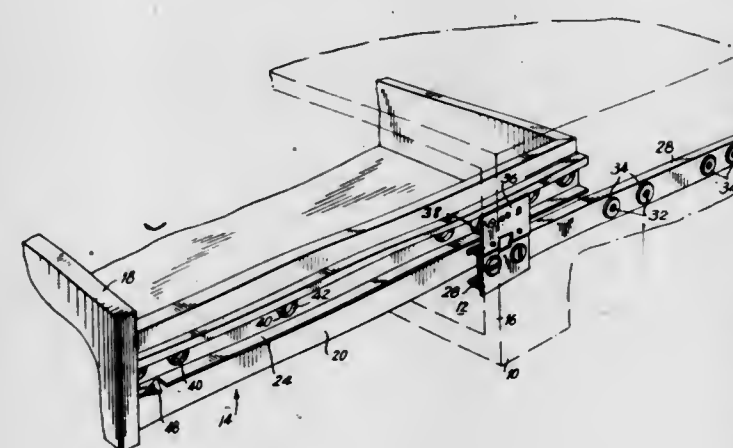
3,574,436
LATCH FOR FILING CABINET DRAWER
Clarence A. F. Anderson, Fruitport, Mich., assignor to The Shaw-Walker Company, Muskegon, Mich.
Filed June 9, 1969, Ser. No. 831,579
Int. Cl. A47b 88/00
U.S. Cl. 312-320 7 Claims



In the front of a filing cabinet drawer is an open flush type handle defining a handhole into which the user may insert his fingers to pull the drawer out. A finger member extends longitudinally across the top of the handle in the handhole and may be pressed upward by the fingers of the user to raise a latch actuating element which extends from the handhole to one side of the drawer. The latch actuating member carries a latch so related to a strike on the wall of the cabinet

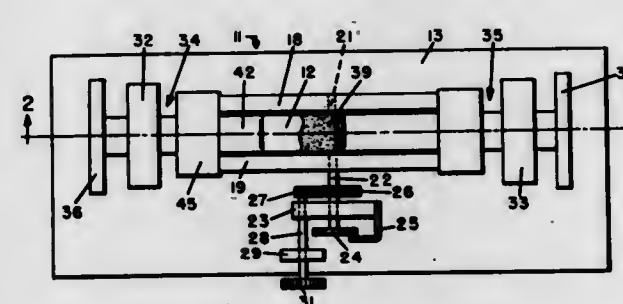
that, when the drawer is pushed home, the latch member rides up on the strike and then drops down to lock the drawer in place. When the latch member is pressed upwardly by the fingers of the user in the handhole, the latch is released and the drawer may be pulled out.

3,574,437
DRAWER SLIDE CONSTRUCTION
Robert R. Stein, Mamaroneck, and Stanley H. Coe, Sloatsburg, N.Y., assignors to Instrument Systems Corporation, New York, N.Y.
Filed Feb. 14, 1969, Ser. No. 799,404
Int. Cl. A47b 88/00, 95/00
U.S. Cl. 312-341 10 Claims



A self-closing slideable drawer is provided with tracks on each side having a roller vertically offset from its track adjacent its rear, which roller cooperates with a corresponding stationary track on each side of the cabinet, which tracks have a roller vertically offset therefrom adjacent its respective front, and which roller is received within its mating drawer track. One set of rollers on one side of the drawer has a smaller width than the other side, and the tracks have stops for in and out position of the drawer.

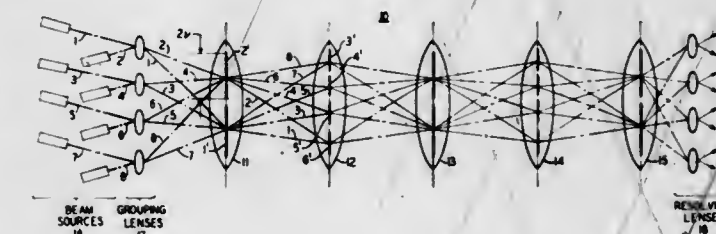
3,574,438
QUASI-OPTICAL MICROWAVE COMPONENT
John W. Carson, Cambridge, Mass., assignor to the United States of America as represented by the Administrator of the National Aeronautics and Space Administration
Filed Feb. 27, 1969, Ser. No. 802,818
Int. Cl. G02b 13/14; H01p 1/22
U.S. Cl. 350-1 21 Claims



A quasi-optical microwave component having a rotatably mounted dielectric body with input and output faces is disclosed. The dielectric body is adapted for connection in an oversized waveguide system such that polarized electromagnetic energy is incident on the input face at the Brewster angle. Rotation of the dielectric body in one direction attenuates the energy transmitted from the output face and rotation in the opposite direction produces a phase shift therein.

3,574,439
MULTIPLE BEAM TRANSMISSION SYSTEM
Detlef C. Gloge, Matawan, and Enrique A. J. Marcattill, Rumson, N.J., assignors to Bell Telephone Laboratories, Incorporated, Murray Hill, Berkeley Heights, N.J.
Filed Sept. 24, 1968, Ser. No. 761,954
Int. Cl. G02b 27/00 4 Claims

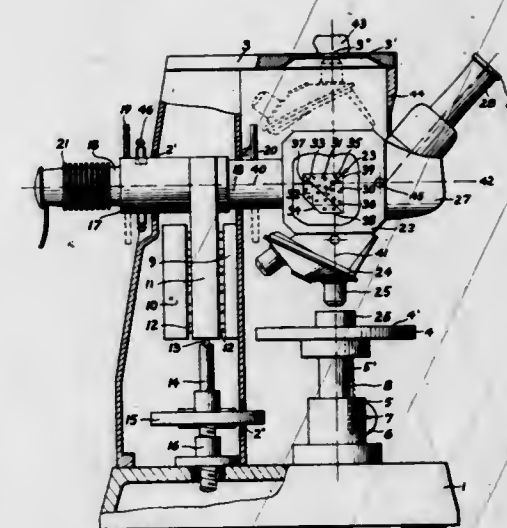
U.S. Cl. 350-31



Special multiplexing of a plurality of N beams in a beam transmission system comprising a sequence of confocally spaced lenses is accomplished by directing the beams such that p separate groups of q beams are formed at odd lenses in said sequence of lenses, and q separate groups of p beams are formed at even lenses in said sequence, where p and q are integers greater than one and $p \times q = N$. The beams are resolved at the output end into N separate beams. A similar arrangement can be employed using nonconfocally spaced lenses or a continuously focusing waveguide.

3,574,440
INCIDENT LIGHT MICROSCOPE WITH ROTATABLE HOUSING
Fritz Dertina; Fritz Gabler, Vienna, and Roland Mitsche, Loeben, Austria, assignors to C. Reichert Optische Werke A.G., Vienna, Austria
Continuation of application Ser. No. 589,957, Oct. 27, 1966, now abandoned. This application Sept. 17, 1969, Ser. No. 866,838
Int. Cl. G02b 21/06 7 Claims

U.S. Cl. 350-91



An incident light microscope permitting to view an object either from above or from below, in which the light source, the objective carrier and the elements for illuminating the object form a single unit which is turnable about an axis arranged parallel to and between a pair of support faces adapted to support an object to be viewed in the microscope and in which this axis coincides with the optical axis of part of the path of the viewing and part of the path of the illuminating rays.

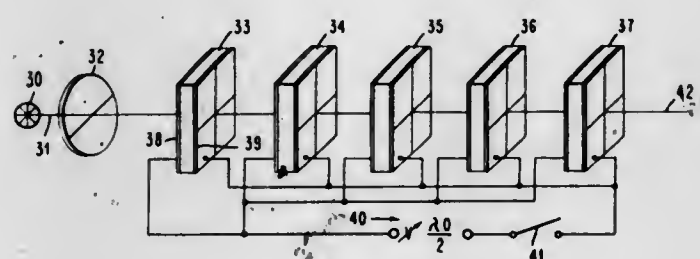
3,574,441

ACHROMATIC POLARIZATION ROTATOR

Thomas J. Harris, Chestnut Hill, Mass., and Erhard Max, Stadelingen, Germany, assignors to International Business Machines Corporation, Armonk, N.Y.
Filed Nov. 22, 1968, Ser. No. 778,186
Int. Cl. G02f 1/40

U.S. Cl. 350-150

6 Claims



Apparatus is provided for effecting controlled alterations in the polarization of a multiwavelength beam of radiation. Plural stress responsive elements are arranged in cascade to receive the radiation from a source; the elements being arranged in differing predetermined directions with respect to the polarization of the radiation. Dependent on the stress applied to the elements, the apparatus is tunable for bandwidth response. When stress is applied, the apparatus operates to provide a second state of operation.

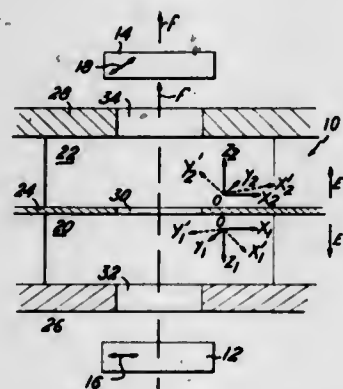
3,574,442

ELECTRO-OPTICAL PHASE DISPLACEMENT CELL

Maurice Michon, Draveil, France, assignor to Commissariat A L'Energie Atomique, Paris, France
Filed Feb. 27, 1969, Ser. No. 803,044
Claims priority, application France, Mar. 1, 1968, 142153
Int. Cl. G02f 1/26

U.S. Cl. 350-150

6 Claims



An electro-optical cell for the phase displacement of a polarized light beam comprising two single crystals which exhibit the Pockels effect, the crystals being disposed symmetrically with respect to a flat central electrode and enclosed between two flat lateral electrodes. The principal crystallographic axes of the single crystals are directed at right angles to the flat electrodes. The light beam to be displaced in phase passes through each single crystal in turn in the direction of the crystallographic axes. The cell also comprises a coaxial cable, the flat central electrode being inserted in the central conductor of the cable whilst the flat lateral electrode is inserted in the outer conductor of the cable.

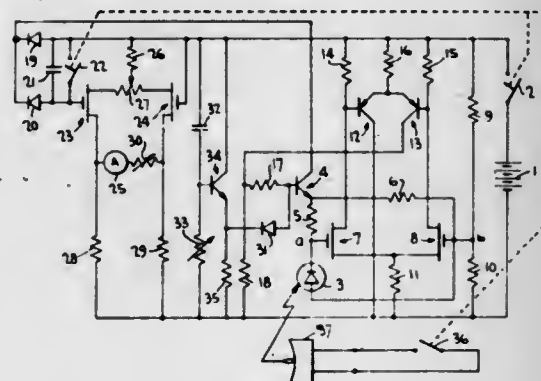
3,574,443

APPARATUS FOR DETERMINING THE QUANTITY OF TIME-INTEGRATED LIGHT

Yasuhiro Nanba, Toyokawa-shi, Japan, assignor to Minolta Camera Kabushiki Kaisha, Minami-ku, Osaka, Japan
Filed Feb. 7, 1969, Ser. No. 797,433
Claims priority, application Japan, Feb. 14, 1968, Mar. 18, 1968, June 19, 1968, 43/9505; 43/21248; 43/42452
Int. Cl. G01j 1/46

U.S. Cl. 356-215

6 Claims



The present invention concerns an apparatus using a transistor circuit including a photocell for determining the quantity of time-integrated light and it specifically concerns a flash exposure meter which determines the time-integrated value of the light reflected from the object illuminated by the flash light or the incident light on the object.

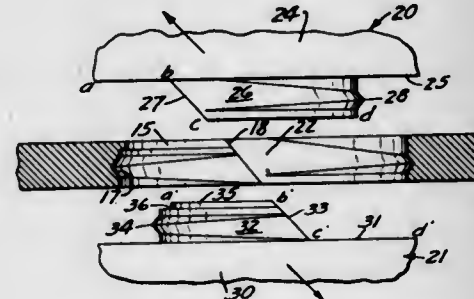
3,574,444

FRAME USEFUL AS LENS SUPPORT

Richard D. Hipp, Jr., Circle Pines, Minn., assignor to Minnesota Mining and Manufacturing Company, St. Paul, Minn.
Original application Aug. 28, 1968, Ser. No. 389,160, now Patent No. 3,431,967. Divided and this application July 9, 1968, Ser. No. 743,408
Int. Cl. G02b 7/02

U.S. Cl. 350-252

6 Claims



Undercut framelike members, e.g. lens holders, which are produced by casting in two-piece single-draw injection molds, have an inner undercut groove tapering from maximum depth at one centerline to zero depth at the centerline perpendicular thereto and provide for stable support and easy removal of the lens.

3,574,445

SOURCE OF RADIATION

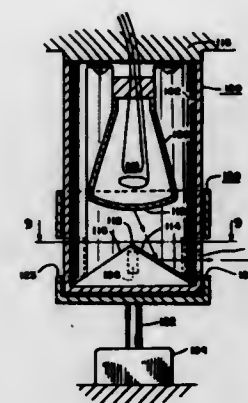
Duane D. Harmon, Irondequoit, N.Y., assignor to Bausch & Lomb, Incorporated, Rochester, N.Y.
Filed Mar. 28, 1966, Ser. No. 537,773
Int. Cl. G02f 1/30

U.S. Cl. 350-272

3 Claims

A source of radiation generated from a single light source for optical comparison systems is provided wherein one or

more modulated light beams of substantially equal intensity is techniques. The reflector is a one-sheet hyperboloid or some other similar smoothly varying curved sheet containing both



sequentially directed along a predetermined path so as to pass through a liquid sample.

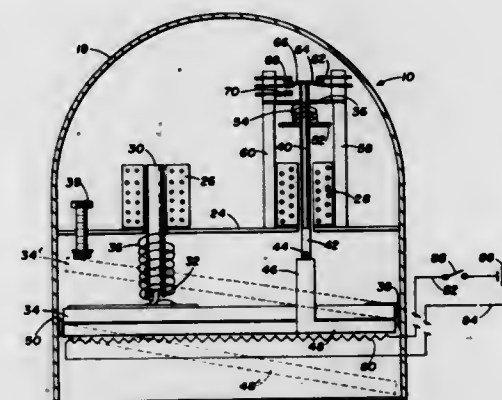
3,574,446

ADJUSTABLE REAR VIEW MIRROR WITH ANTIGLARE STRUCTURE

Willis D. Moore, P.O. Box 392, Athens, Tex.
Filed Oct. 22, 1968, Ser. No. 769,487
Int. Cl. G02b 5/08, 7/18

U.S. Cl. 350-283

14 Claims



A vehicle mirror assembly having daytime and nighttime positions which are variable in response to operation of the directional signal lever of the vehicle. A support is provided for attachment to the vehicle, with a mirror and an antiglare member mounted within the support upon spaced vertical axes. A first solenoid has a solenoid shaft connected to the mirror and is operable in response to the directional signal lever of the vehicle in order to move the mirror between two extreme positions. The second solenoid has a solenoid shaft connected to the antiglare member and is responsive to the directional signal lever and the vehicle light switch for moving the antiglare member between two extreme positions. Switch structure is provided to prevent the first solenoid from being actuated when the second solenoid is actuated.

3,574,447

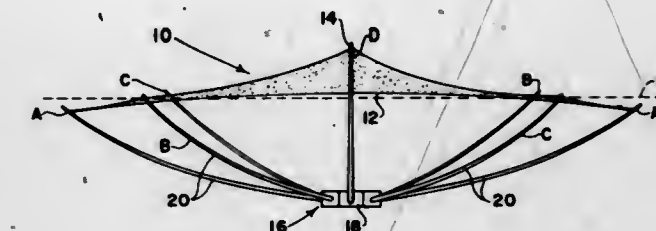
MULTICURVED REFLECTOR

Fredrick R. Ruble, Stow, Ohio, assignor to Goodyear Aerospace Corporation, Akron, Ohio
Filed Feb. 17, 1969, Ser. No. 799,853
Int. Cl. G02b 5/10

U.S. Cl. 350-293

4 Claims

The invention relates to a reflecting surface with a prescribed complex curvature achieved without the use of internal pressurization-, inflation-, or rigidization-dependent



convex and concave elements at every point on its surface. The surface is achieved by the proper tensioning and positioning of the sheet around its periphery.

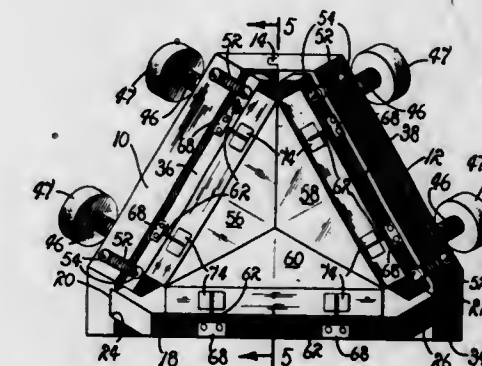
3,574,448

ADJUSTABLE MOUNT FOR A TRIHEDRAL MIRROR

T. O. Paine, Deputy Administrator of the National Aeronautics and Space Administration in respect to an invention of; Harry W. Petersen, Oakland, and Raymond O. Laurie, San Leandro, Calif.
Filed May 13, 1969, Ser. No. 824,042
Int. Cl. G02b 5/08

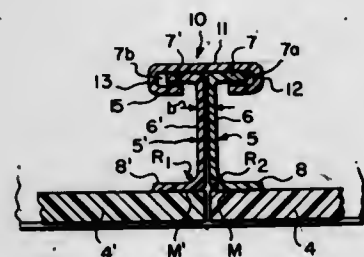
U.S. Cl. 350-310

5 Claims



An adjustable mount for a trihedral mirror of the type including three contiguous mirror segments having reflecting surfaces operatively arranged in mutually normal planes and particularly suited for use in interferometers, characterized by the utilization of an alloy, such as that commercially available under the trade name Invar, to form a pair of rigidly coupled and normally disposed side plates having a bottom plate fixedly secured thereto along a pair of intersecting edge portions. Each of the side plates adjustably supports a backup plate through screw-threaded adjusting screws, also of Invar, and a plurality of tension springs connected therebetween, with each backup plate, as well as the bottom plate, being provided with a plurality of extended and tensioned links of music wire joined at spaced intervals to the edge surfaces of an adjacent mirror segment in a manner such as to preclude an interruption of impinging beams of light, whereby each of the mirror segments can be adjusted by manipulating the adjusting screws, while heat-induced error is rendered negligible, so that the reflecting surfaces may be adjusted to assume a fixed, mutually normal relationship with minimum deviation error.

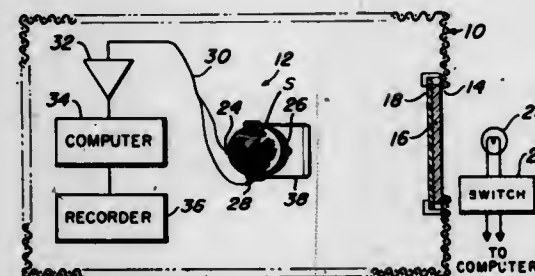
3,574,449
SEAM LOCK FOR INDIVIDUAL PLASTIC FACE PANELS
OF INTERNALLY ILLUMINATED SIGN BOX
Jerome Rosenberg, 11 Staules Drive, Plainview, N.Y.
Filed Apr. 29, 1969, Ser. No. 820,123
Int. Cl. G02b 5/00, 27/00; E04c 1/30
U.S. Cl. 350—319 **12 Claims**



A channel seam lock for removably securing together panels of an internally illuminated sign box or the like.

3,574,450
**METHOD AND APPARATUS FOR DETERMINING THE
EFFECTIVENESS OF SPATIAL VISION.**
Carroll T. White, 3321 Poe St., San Diego, Calif., and Melvin
R. Harter, 809 Courtland St., Greensboro, N.C.
Filed May 19, 1969, Ser. No. 825,596
Int. Cl. A61b 3/02

U.S. Cl. 351-17 13 Claims



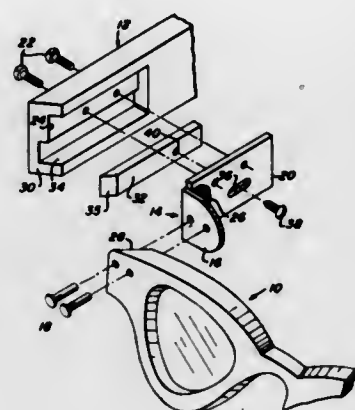
A method and apparatus for testing the spatial vision of a subject by obtaining averaged evoked cortical responses produced by various patterned stimuli; and by obtaining such responses produced by a subject observing a given pattern through a graded series of ophthalmic lenses. The amplitude of certain components of the evoked cortical response, occurring at specific times following the brief illumination of such patterns, vary directly with the degree of clarity of the perceived images produced by these patterns. The degree of refractive error, and other aspects of a subject's visual characteristics, can thus be determined by finding the conditions that produce the maximum amplitudes of those specific components of the evoked response.

3,574,451
SPECTACLE FRAME
Achille Lazazzera, 46 Moherman Ave., Youngstown, Ohio
Filed June 12, 1969, Ser. No. 832,619
Int. Cl. G02c 5/14, 5/20

U.S. Cl. 351-121 **Int. Cl. G02 5/14, 5/20** **5 Claims**

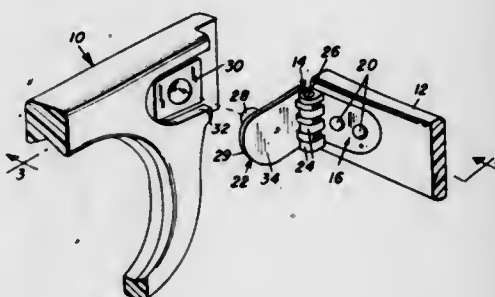
A novel hinge structure is disclosed for attaching the temples to the frontal lens carrying frame of a spectacle frame. The hinge structure comprises a pair of pivotally connected tongue members, one of which is attached to a temple and the other of which is attached to an end portion of the frontal lens carrying frame such that the temple is adapted to move pivotally both outwardly and inwardly relative to the frontal

lens carrying frame. A slide member is associated with one of the tongue members of the hinge structure and is adapted to



be moved and held in a desired one of a plurality of positions to limit the extent of outward pivotal movement of the temple relative to the frontal lens carrying frame.

3,574,452
BREAKAWAY TEMPLE HINGE MOUNTING FOR
SPECTACLE FRAME
Stuart Louis McLendon, 5802 E. 30th St., and Joseph Robert
Hanson, 2573 E. Alto Vista, Tucson, Ariz.
Filed May 5, 1969, Ser. No. 821,619
Int. Cl. G02c 5/14, 5/22
U.S. Cl. 351—153
5 Claims

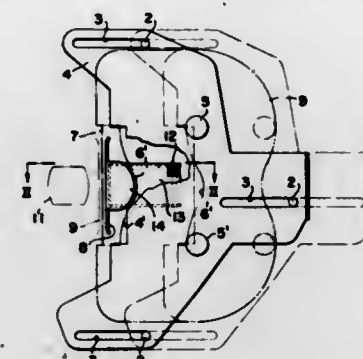


The subject invention relates to a breakaway hinge mounting for spectacles which permits the temple piece to break away from the lens frame under an impact. The hinge includes a side leaf rigidly secured to the temple piece, a front leaf pivotally secured to the side leaf, a gripper rigidly secured to the front leaf and a securing member embedded in the lens frame for engaging the gripper, thereby preventing rotation of the temple member and permitting the temple piece to break away from the lens frame when the spectacle hinge is subjected to an external force.

3,574,453
**RETRACTABLE MIRROR MEANS FOR CARTRIDGE-
TYPE MOTION-PICTURE PROJECTOR**
Teruei Hara, Ohmiya-shi, Japan, assignor to Fuji Shashin
Koki Kabushiki Kaisha, Ohmiya-shi, Saitama-Ken, Japan
Filed Mar. 22, 1968, Ser. No. 715,322
Claims priority, application Japan Mar. 28, 1967, 42/25102
Int. Cl. G03b 23/02

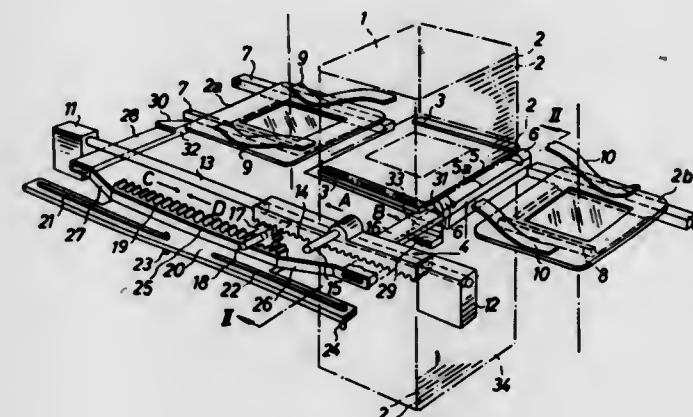
U.S. Cl. 352-72 **Int. Cl. G05b 23/02** **2 Claims**
A cartridge-type motion-picture projector comprises a frame and a film cartridge supporting plate mounted on the frame and movable in a fore-and-aft direction. Light from a

light source enters the projector in a direction transversely thereof and is reflected by a mirror which is retracted when drive mechanism. The invention consists of apparatus for causing a point on the surface of the drum to move with



the cartridge supporting plate is in a forward position and projected into an operative position when the cartridge supporting plate is in a backward position.

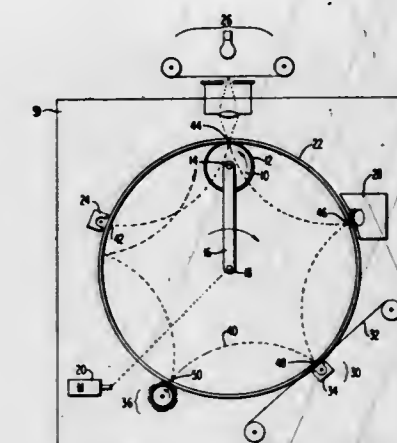
3,574,454
SLIDE PROJECTOR
Karl Deeg, Unterhaching, Germany, assignor to AGFA-
Gevaert Aktiengesellschaft, Leverkusen, Germany
Filed July 18, 1968, Ser. No. 745,870
Claims priority, application Germany, July 20, 1967,
P 15 72 546.9
Int. Cl. G03b 23/14
U.S. Cl. 353-114 13 Claims



A slide projector wherein a reciprocable slide changer alternately transports lowermost slides from a centrally located tray to two projecting stations by moving the slides in a first plane which is parallel to the common plane of the projecting stations. Springs cause the thus transported slides to move from the first into the second plane and clamp the slides in registry with the respective stations. An evacuating device is reciprocable in response to reciprocation of the slide changer to remove slides from stations which are about to receive fresh slides and to transport the thus removed slides into a collecting receptacle wherein the slides are stacked in the same order in which they are being removed from the tray.

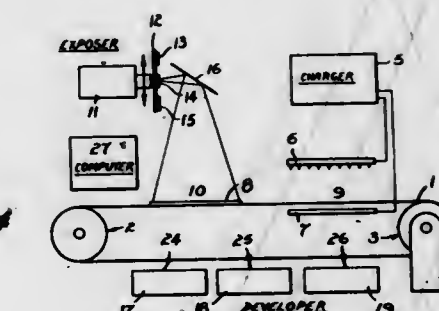
3,574,455
HIGH SPEED ELECTROSTATIC PRINTER
Arthur L. Mix, Jr., Lexington, and David C. Evans, Jr.,
Knoxville, Ky., assignors to International Business
Machines Corporation, Armonk, N.Y.
Filed May 15, 1968, Ser. No. 729,304
Int. Cl. G03e 15/04

U.S. Cl. 355—3 Int. Cl. G03g 15/04 9 Claims
Apparatus for achieving high speed electrostatic printing rates by utilization of a continuously rotating planetary drum



apparent intermittent motion past various functional stations in an electrostatic printing process.

3,574,456
APPARATUS FOR PRODUCING
ELECTROPHOTOGRAPHIC COPIES
Archie R. Grace, Collinswood, South Australia, assignor to
Ricoh Co., Ltd., Nakamagome, Ohta-Ku, Tokyo, Japan
Filed Oct. 10, 1967, Ser. No. 674,241
Claims priority, application Australia, Oct. 18, 1966, 12,731
Int. Cl. G03g 15/00
U.S. Cl. 355—4 8 Claims

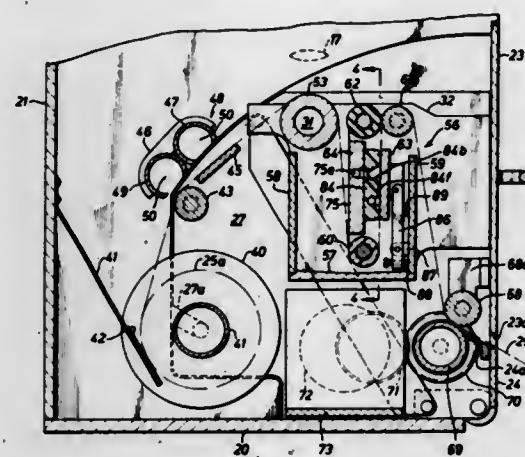


Apparatus for electrophotographic sequential color printing by returning the sensitizable paper to the starting position a required number of times and exposing and developing with different color conditions each time, and an applicator for the developer. An exposure station and a developer station are provided and timing means select the color exposure and development.

3,574,457
ELECTROSTATIC CAMERA
Clyde M. Slavons, Houston, Tex., assignor to Dresser Industries, Inc., Dallas, Tex.
Filed Oct. 3, 1968, Ser. No. 764,672
Int. Cl. G03g 9/04

U.S. Cl. 355—10 **8 Claims**
An electrostatic copy apparatus including a cabinet with an upright container mounted therein. The upright container

is connected to a front panel on the cabinet which can be pulled forward for providing access to the upright container.



Paper is directed into the upright container and a liquid applicator applies liquid to the paper.

3,574,458

APPARATUS AND METHOD FOR MODIFYING CONTRAST IN PHOTOGRAPHIC IMAGES

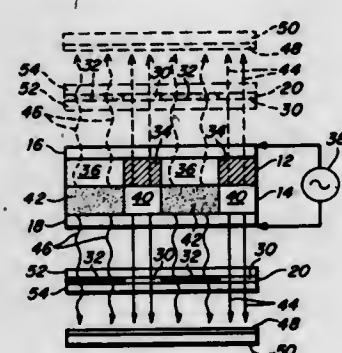
Hollis Edward French, North Chelmsford, Mass., assignor to Itak Corporation, Lexington, Mass.

Filed Apr. 8, 1968, Ser. No. 719,656

Int. Cl. G03b 27/76

U.S. Cl. 355—80

22 Claims



Apparatus is disclosed for exposing a control material with radiation through an image-bearing transparency to vary the impedance of the control material in a pattern in proportion to the density of the image borne by the transparency. Applied across the control material and an electroluminescent material is an electric field which varies at the electroluminescent material as a function of the impedance pattern of the control material. And means are provided for exposing through the transparency a photosensitive medium with actinic radiation produced by the electroluminescent material whose intensity varies as a function of the electric field applied to it in a pattern proportional to the density distribution of the image borne by the transparency.

3,574,459

OPTICAL COPYING APPARATUS

Karl Hartwig, and Gunther Schnall, Munich, Germany, assignors to AGFA Gevaert Aktiengesellschaft, Leverkusen, Germany

Filed Aug. 22, 1968, Ser. No. 754,695

Claims priority, application Germany, Aug. 24, 1967, A56,589

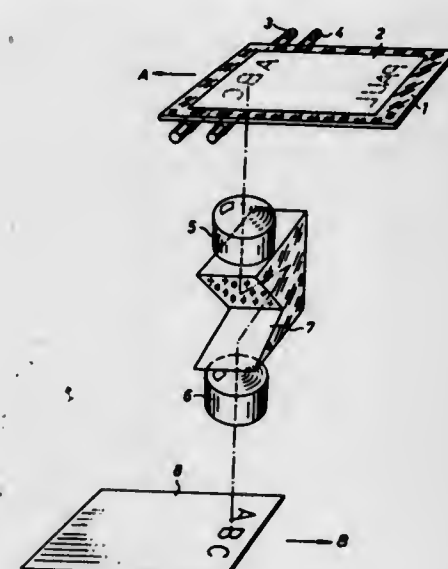
Int. Cl. G03b 27/70

U.S. Cl. 355—66

9 Claims

Optical copying apparatus wherein a transparent support for a positive or negative original is movable back and forth in or counter to the direction of travel of the copy. The light source is stationary so that it illuminates successive increments of the original on the moving support. The optical

system comprises two axially spaced objective lenses and an image inverting optical device (such as an Abbe prism) which is located between the lenses and is turnable through 90° about the optical axis to assume a first position when the



support travels in one direction of a second position when the support travels in the opposite direction. The support is reciprocated by the drive for the copy, and such drive also changes the position of the optical device when the support changes the direction of its movement.

3,574,460

HIGH-PRESSURE GATE FOR PHOTOGRAPHIC CONTACT PRINTING

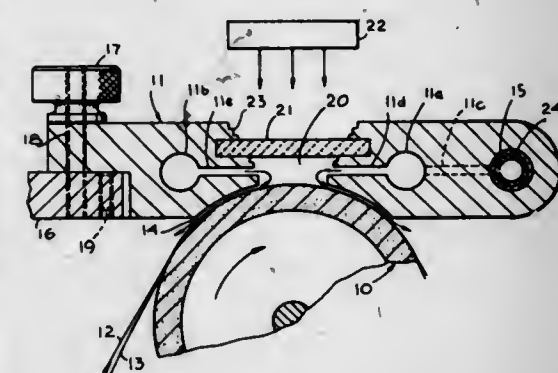
Alvin A. Snaper, 9722 Canaba Ave., Chatsworth, Calif., and Frank R. Gibson, 438 Lincoln Blvd., Santa Monica, Calif.

Filed Nov. 14, 1968, Ser. No. 775,639

Int. Cl. G03b 27/20, 27/10

U.S. Cl. 355—91

8 Claims



A new photographic printing apparatus with which contact prints are made by exposing the original film and the printing stock material at a time when they are brought into intimate contact with one another by pneumatic pressure. The sandwich arrangement of film and printing stock is passed over a drum above which is contiguously disposed a "shoe" mechanism that is contoured to be partially concentric with the drum, a small or narrow air gap separating the drum and shoe whereat they are concentric. The air, under pressure, is applied to the film from the shoe side and escapes through the air gap, the entire arrangement providing the pressure distribution needed to achieve fine contact printing.

3,574,461

RANGE DISPLAY SYSTEM

John F. Yurasek, Passaic, and Arthur Simon, Fair Lawn, N.J., assignors to The Bendix Corporation

Filed Sept. 30, 1968, Ser. No. 763,865

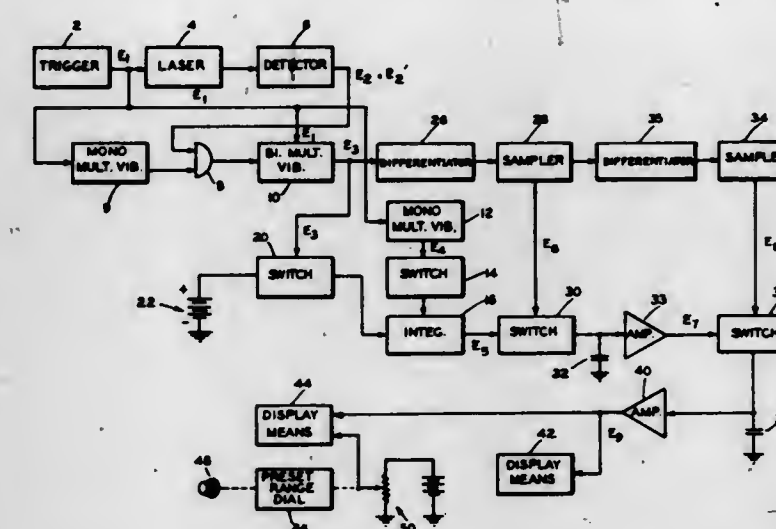
Int. Cl. G01c 3/08

U.S. Cl. 356—5

10 Claims

A system for converting the interval between signals fired at a target and corresponding rebound signals therefrom to a

full scale target range indication and to an expanded scale indication showing target range to a preset range point, and



including noise reduction and range rate augmentation means for increased accuracy.

3,574,462

MAKSUTOV SPECTROGRAPH

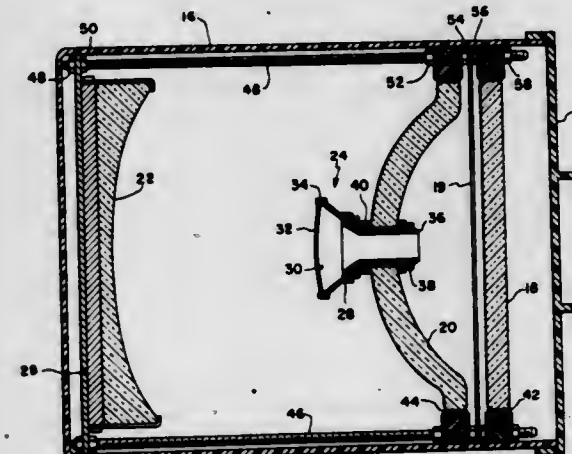
Gale A. Harvey, Hampton, Va., assignor to the United States of America, as represented by the Administrator of the National Aeronautics and Space Administration.

Filed Sept. 26, 1968, Ser. No. 762,935

Int. Cl. G01j 3/40

U.S. Cl. 356—76

2 Claims



A spectrograph especially suited for research analysis of low level sources in such areas as reentry spectroscopy, comprising a high efficiency transmission grating or prism combined with a simplified Maksutov optical layout, and featuring lightweight structural components and arrangements which minimize thermally induced misalignments and simple adjustment mechanisms for focus of the film surface and alignment of the optical elements.

3,574,463

APPARATUS FOR ALIGNING LAMPS IN A LANTERN

Nicky R. Jackowski, and Peter W. Higgins, Houston, Tex., assignors to Tideland Signal Corporation, Houston, Tex.

Filed July 23, 1969, Ser. No. 843,956

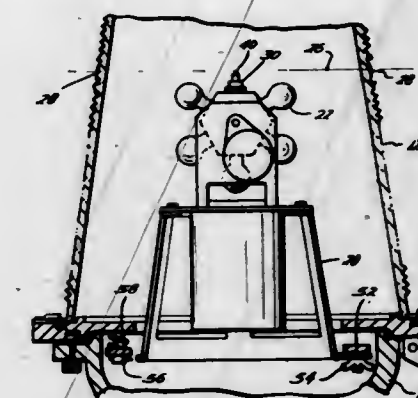
Int. Cl. G01m 11/02; F21q 3/02

U.S. Cl. 356—123

12 Claims

A lamp focus fixture for inserting in a lamp holder in a lantern having a lens and lamp focusing indicators for aligning the lamp in the lens. A focus fixture including a flange which is shaped and sized in circumference and thickness the same as the flange of the lamp to be aligned whereby the fixture flange will fit into the lamp holder in the same position as the lamp and a sighting indicator secured to the flange and spaced from the bottom of the flange a

distance equal to the distance between the midpoint of the filament to the bottom of the flange of the lamp. A base secured to the bottom of the flange having the same size and shape as the lamp to be aligned. The flange including



openings for receiving electrical pins. A focusing indicator having optics to compensate for the optics of the lantern lens and having telescopic lens for magnification and crosshair sighting for greater accuracy.

3,574,464

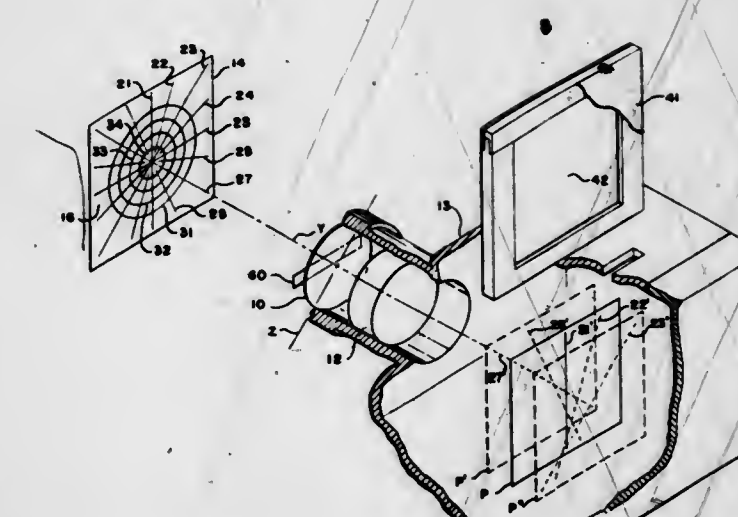
CAMERA TEST EQUIPMENT AND METHOD

Bradford Howland, 2161 Mass. Ave., Cambridge, Mass. Continuation-in-part of application Ser. No. 454,602, May 10, 1965, now Patent No. 3,486,325. This application July 16, 1968, Ser. No. 745,162

Int. Cl. G01b 9/00

U.S. Cl. 356—126

9 Claims



Two methods are described for testing cameras and camera lenses by utilizing the properties of the crossed-cylinder lens, an ophthalmic test device. In the first, the cylinder lens is used in conjunction with a rectangular grid to defocus the star image formed by a collimator. This test permits quantitative determination of axial chromatic aberration, spherical aberration and its variations with wavelength, and coma of the lens. In the second, a segment of the cylinder lens is used as a supplementary lens attachment to the camera, which photographs a polar-coordinate chart. Analysis of the photograph permits determination of the sagittal and tangential field curvatures and also indicates errors in focal adjustment and misalignment of film plane with respect to the lens axis.

These tests require cylinder lenses of smaller dioptric power and quality superior to that available from the ophthalmic lens industry. Methods for the construction and synthesis of the needed large-aperture weak, cross-cylinder lenses and segments are given.

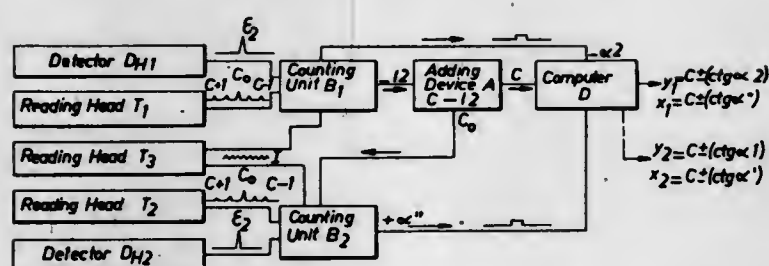
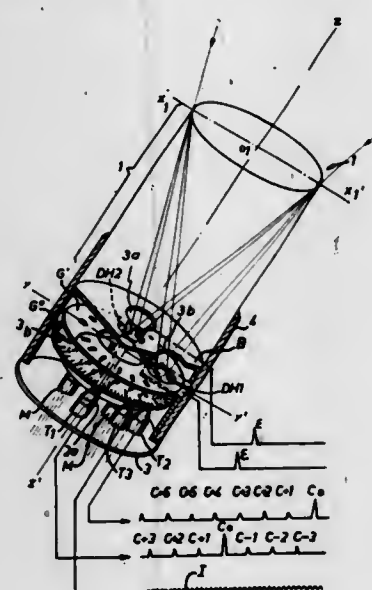
3,574,465 METHODS OF MEASUREMENT OF SIGHTING ERRORS OF AN OPTICAL INSTRUMENT AND THE CORRESPONDING MEASURING DEVICE

Pierre Poubeau, Gif-sur-Yvette, France, assignor to Nord-Aviation Societe Nationale De Constructions Aeronautiques, Paris, France

Filed Apr. 12, 1968, Ser. No. 720,939
Claims priority, application France, Apr. 17, 1967, 103,040
Int. Cl. G01b 11/26

U.S. Cl. 356-152

8 Claims



Method and device of measurement of the sighting error of an optical instrument and especially a star-sighting device for an artificial satellite, in which at least two images of at least two sighted objects are formed in two orthogonal fields of the image focal plane, two detection signals of light flux in each field are formed, two angular measurements of position with respect to a time base of one of the images of the first field is effected, one of said measurement being transferred into the second field and on the second image of the same object, in order to effect a second measurement and comparing the two measurements obtained.

3,574,466

ANGULAR MEASUREMENT APPARATUS

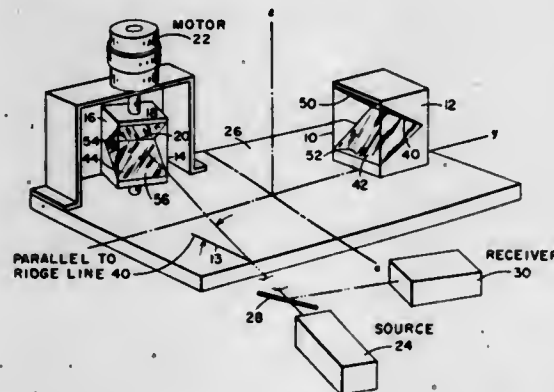
Charles J. Peters, Wayland, Mass., assignor to Sylvania Electric Products, Inc.

Continuation-in-part of application Ser. No. 419,384, Dec. 18, 1964, now abandoned. This application Apr. 15, 1968, Ser. No. 721,385

Int. Cl. G01b 11/26

U.S. Cl. 356-152

5 Claims



Apparatus comprising stationary and rotating electromagnetic energy reflectors oriented to define a

common plane wherein the reflectors cooperate with a remote energy source and sensors to provide an angular measure in the common plane between a reference line and a line of sight.

3,574,467

METHOD AND APPARATUS FOR ALIGNING A LASER BEAM PROJECTOR

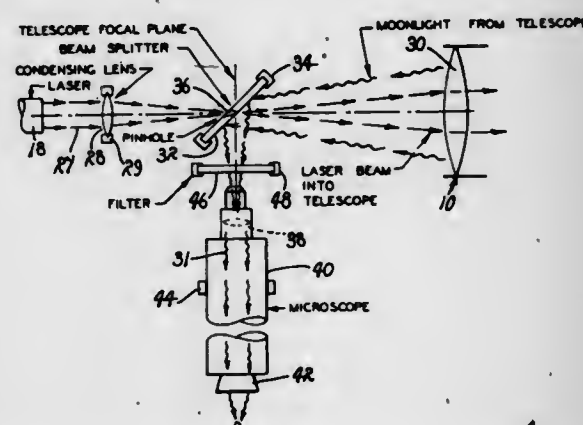
T. O. Paine, Administrator of the National Aeronautics and Space Administration in respect to an invention of; Michael S. Shumate, Pasadena; James A. Westphal, Altadena, and Lewis H. Allen, Pasadena, Calif.

Filed July 9, 1969, Ser. No. 840,359

Int. Cl. G01b 11/27

U.S. Cl. 356-153

5 Claims



A method and apparatus particularly suited for use in aligning an optic system, such as an astronomical telescope, employed as a laser beam projector for projecting a beam of laser light against a celestial target and including therein an arrangement of optically related lenses and mirrors by which light emanating from a celestial target is brought in focus to form an image of the target within the focal plane of the optic system, and characterized by the utilization of a beam splitter having a reflecting surface including a microscopic opening disposed within the path of a projected laser beam, as well as within the path of the light being brought in focus, whereby the laser beam is projected through the optic system toward the target, while the light emanating from the target is brought in focus in the focal plane of the system and then redirected by the reflecting surface of the beam splitter to a second optic system for imaging both the target and the opening formed in the beam splitter for thereby accommodating a visual detection of optical alignment of the system for assuring alignment of the system relative to the target.

ERRATUM

For Class 356-215 see:
Patent No. 3,574,443

3,574,468

OPTICAL BENCH ASSEMBLY

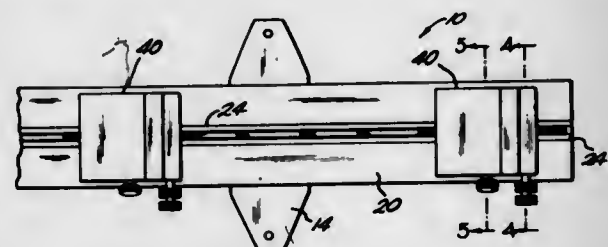
Thomas S. Herman, Ypsilanti, Mich., assignor to Data Optics, Inc., Ypsilanti, Mich.

Continuation of application Ser. No. 709,481, Feb. 29, 1968, now abandoned. This application May 25, 1970, Ser. No. 41,692

Int. Cl. G02b 27/32, 7/02, 7/18

U.S. Cl. 356-256

22 Claims



Apparatus for setting up and investigating optical systems which have an elongated base portion adapted to be leveled

3,574,471

PHOTOGRAPHIC MONITOR TO DETERMINE EXPOSURE TO LASER RADIATION

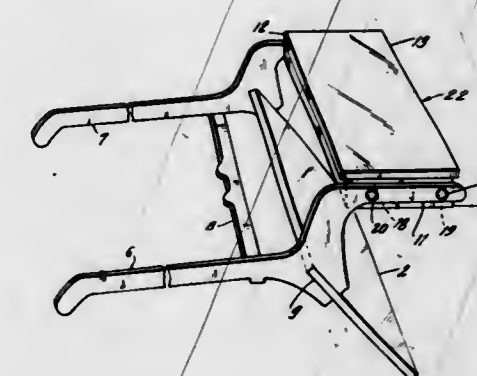
Elliott H. Kahn, Brooklyn, N.Y., assignor to Kollsman Instrument Corporation, Syosset, N.Y.

Filed Mar. 8, 1968, Ser. No. 711,664

Int. Cl. G01j 1/46

U.S. Cl. 356-215

9 Claims



A device for determining the quantity of laser radiation exposed to the eyes or body of an observer in a given period of time. A beam splitter mounted on a spectacle frame directs a small portion of incident laser light to a photosensing device such as a plate of photosensitive film also carried on the frame. A light filter, which has a band pass which passes laser frequencies and blocks the remaining band of the spectrum is supported between the film and the beam splitter. The incident laser radiation is now monitored by the film. When the film is developed, one can determine the total quantity of laser light passing into the eyes or other body portions from the exposure of the film.

3,574,469

FAULT-DETECTING SURFACE SCANNER USING A LASER LIGHT SOURCE

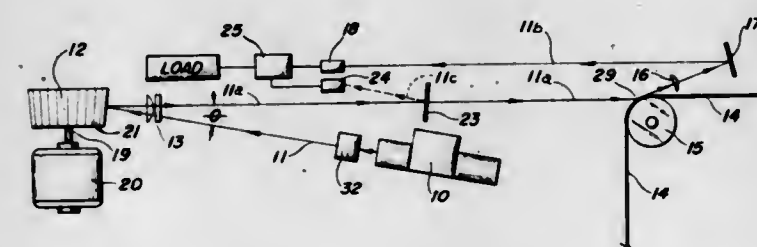
Howard J. Emerson, Rochester, N.Y., assignor to Eastman Kodak Company, Rochester, N.Y.

Continuation-in-part of application Ser. No. 374,990, June 15, 1964. This application Jan. 23, 1968, Ser. No. 706,213

Int. Cl. G06n 21/16

U.S. Cl. 356-200

1 Claim



A high speed optical fault-detecting surface scanner apparatus utilizing a laser light source which detects faults appearing on the surface of a relatively wide web driven past an inspection station at high speeds.

3,574,470

METHOD AND DEVICE FOR DETECTING VOIDS IN LOW-DENSITY MATERIAL

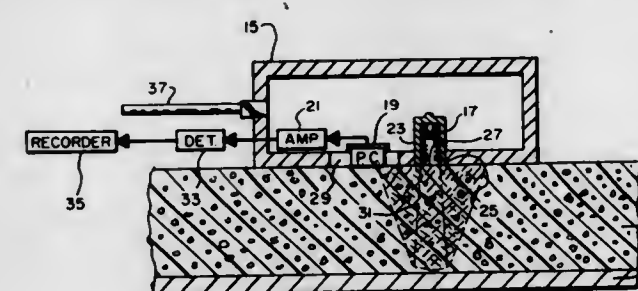
T. O. Paine, Deputy Administrator of the National Aeronautics and Space Administration in respect to an invention of; Edward K. Vukelich, Flathead County, Mont., and William D. Howard, Huntsville, Ala.

Filed July 2, 1969, Ser. No. 838,630

Int. Cl. G01n 21/48

U.S. Cl. 356-209

5 Claims



A method and device for detecting abnormal voids in a low-density material such as polyurethane foam insulation wherein light is beamed into the material and the light reflected from the material is received by a photodetector which converts the light into a voltage level proportional to the light intensity received by the detector. The intensity of the reflected light decreases when the light is beamed into low-density material having an abnormal void therein and the void is indicated by resultant reduction in voltage output of the photodetector.

3,574,472

BINDER FOR PERFORATED LOOSE LEAVES

Georges E. Cott, Enghien-les-Bains, France, assignor to Reliure Industrielle S.T.D., Argenteuil, Val d'Oise, France

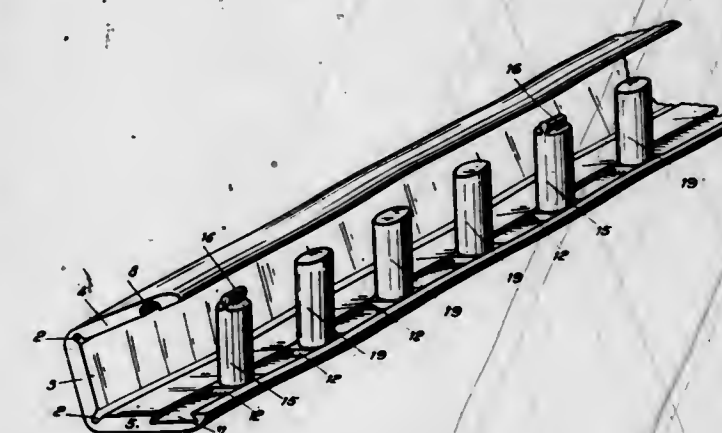
Filed May 13, 1968, Ser. No. 728,668

Claims priority, application France, Oct. 5, 1967, May 16, 1967, 123,491; 106,579

Int. Cl. B42f 3/00

U.S. Cl. 402-22

11 Claims

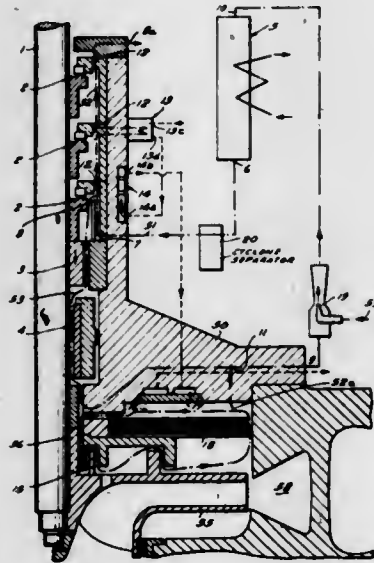


A binder for perforated looseleaf sheets comprises a profiled support member having a cross-sectional shape which defines a back and top and bottom flanges connected to the back. The support member has a longitudinal groove at the juncture between at least one flange and the back, whereby such flange is foldable with respect to the back. The foldable flange contains a longitudinal groove and the other flange contains a dovetail slot in which are slidably mounted studs on which the perforations of looseleaf sheets can be placed. The studs carry beads which interfit in the recess in the foldable flange so as to detachably secure the flanges together folding the support flat and can be closed by folding at a right angle.

3,574,473

METHOD AND APPARATUS FOR COOLING PARTS OF PUMPS IN NUCLEAR REACTORS OR THE LIKE
Karl Gaffal, Bobenheim(Rhine), Germany, assignor to Klein, Schanzlin & Becker Aktiengesellschaft, Frankenthal (Pfalz), Germany

Filed Jan. 24, 1969, Ser. No. 793,839
Claims priority, application Switzerland, Jan. 24, 1968, July 5, 1968, 1142-68; 10105-68
Int. Cl. F04d 29/00; F01d 1/00
U.S. Cl. 415-1 10 Claims

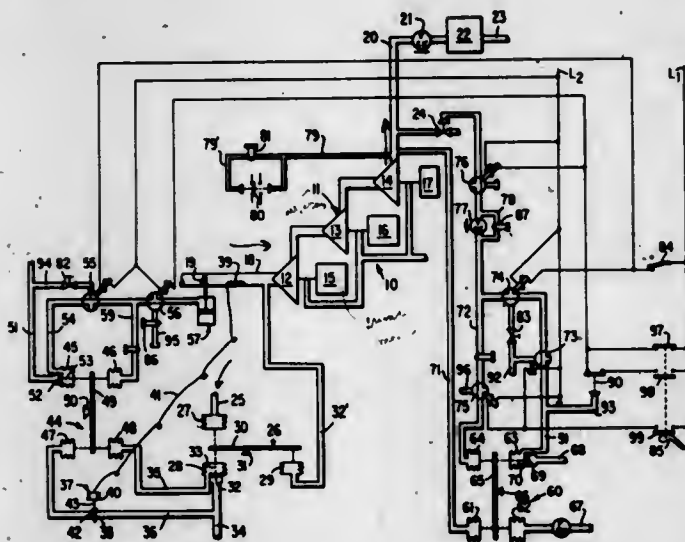


A nuclear reactor pump wherein the shaft seals and radial bearings are cooled by cold water which is circulated by thermosiphon action when the shaft is idle and the pump chamber contains hot fluid. Streams of cold water for cooling of the bearing and of the seals are caused to flow through a common main cooler and thereupon enter the pump housing by way of a common inlet to flow toward separate outlets. The channel for the stream which cools the seals contains several flow restrictors.

3,574,474

METHOD OF AND APPARATUS FOR CONTROLLING THE OPERATION OF GAS COMPRESSION APPARATUS
Nick Lukacs, Adamsburg, Pa., assignor to Carrier Corporation, Syracuse, N.Y.

Filed July 31, 1969, Ser. No. 846,491
Int. Cl. G05d 13/30; F01d 17/00; F04b 49/00
U.S. Cl. 415-15 6 Claims



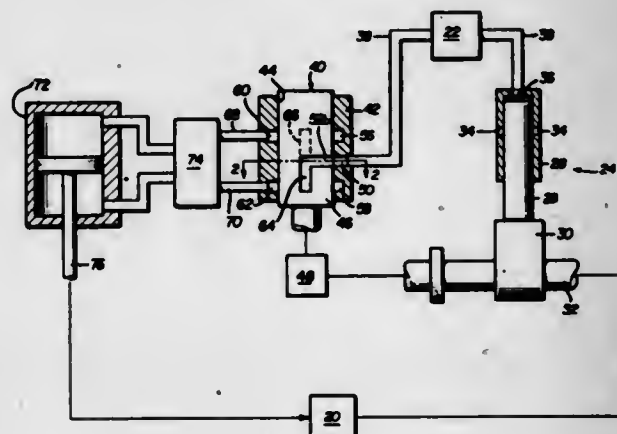
A control system for regulating operation of a gas compression plant, selectively operable on either base mode or on intermittent mode. The control system includes a switch operable to transfer the compression plant from base mode to intermittent mode or from intermittent mode to

base mode. Valves, operable in response to the switch, have a first operating position for base mode and a second operating position for intermittent mode. The discharge pressure of the gas from the compression plant is sensed and a signal related thereto is compared to a predetermined signal, to produce a resultant control signal, operable to regulate a dump valve which governs the venting of excess discharge gas to the atmosphere. The dump valve is modulated during base mode operation and is selectively fully open or fully closed during intermittent mode.

3,574,475

SPEED AND TEMPERATURE SENSING DEVICES
George D. Wolff, 22565 Statler Blvd., St. Clair Shores, Mich.
Continuation-in-part of application Ser. No. 536,400, Mar. 22, 1966, now Patent No. 3,395,718. This application Aug. 6, 1968, Ser. No. 750,508

Int. Cl. G01p 3/72; F02f 31/00
U.S. Cl. 415-17 16 Claims



Speed and temperature-sensing devices for generating a pressure signal in response to vibrations in one or more operating conditions of a variable speed device, such as the speed of the device or the temperature of a selected region variable with or controlled by the speed of the device. Pressure pulses of gaseous fluid are periodically transmitted through a delay conduit to a cyclically operable pulse-dividing means which divides the arriving pulses between a pair of outlet conduits in proportions determined by the relationship between the phase of the divider within its operating cycle and the time of arrival of the pulse. Pulses are transmitted from a pulse-generating means to the dividing means through a conduit of a length such that a finite period of time is required for the pulse to reach the pulse-dividing means. The dividing means and the generating means operate at a cyclic relationship to each other and the length of the delay conduit is fixed. Variation in the proportion of the pulses between the outlet conduits is achieved either by varying the velocity of the pulse through the delay conduit or by changing the phase relation between the generating and dividing means, or both.

3,574,476

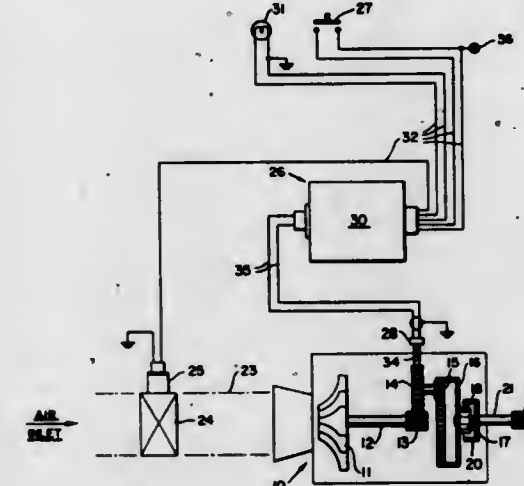
CONTROL SYSTEM FOR ENGINE STARTERS
Arthur H. Jacomet, Phoenix, and Quentin A. Johnson, Scottsdale, Ariz., assignors to The Garrett Corporation, Los Angeles, Calif.

Filed Aug. 29, 1968, Ser. No. 756,115
Int. Cl. F01c 21/12
U.S. Cl. 415-36 12 Claims

The subject system is designed to control the operation of a gas turbine engine starter. It includes a solenoid valve for governing the flow of operating fluid to the starter motor, an electromagnetic pickup for sensing starter motor speed, a start switch, an overspeed indicator means, and electronic circuit means operative to connect the solenoid with a source of electric current when the start switch is actuated and to disconnect it from the source when the magnetic pickup senses a predetermined speed of the starter motor. The system is

operative also to disconnect the solenoid from the current source if a short circuit occurs, or if for any reason the electromagnetic pickup fails to sense motor operation. This disconnecting operation will be repeated each time the start

bearing chamber is prevented by evacuating the bearing chamber to draw a stream of air in one direction past a labyrinthine packing toward the bearing chamber, while

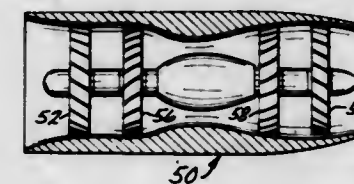


switch is closed until the fault is eliminated. If the solenoid valve fails to close for any reason and the starter motor continues to accelerate, the system operates to energize an overspeed indicator to warn the operator to manually interrupt the starting cycle.

3,574,477

NOISE ATTENUATING SYSTEM FOR ROTARY ENGINES
Hans R. Dolf, Mercer Island; John D. McAllister, North Bend, and Edwin J. Zapel, Maple Valley, Wash., assignors to The Boeing Company, Seattle, Wash.

Filed Feb. 19, 1969, Ser. No. 800,562
Int. Cl. F01d 5/10, 25/00
U.S. Cl. 415-60 9 Claims



A plurality of angularly arranged baffles or blades which are radially mounted to form a fan type construction. The fan is mounted for free rotation in the fluid stream of a rotary engine in the path of the propagating sound waves emitted from the engine. During operation the rotating fan will present a barrier to the sound waves and cause them to be either reflected or scattered towards an area having sound absorbing characteristics while offering a minimum obstruction to the fluid flow. A further sound attenuation and an improvement in engine performance is achieved through a predetermined air pressure profile which is obtained by fairing the blade angle configuration, whereby the inlet air drives the outer portion of the rotating blades and the inner portion of the blades compresses the inlet air. Any engine performance loss which is experienced by the fan type apparatus is offset by the improved air pressure profile at the first stage engine inlet area.

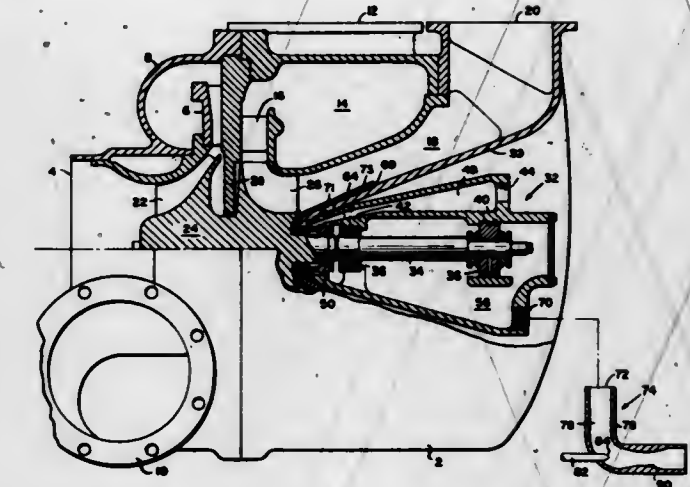
3,574,478

SEALING SYSTEM FOR TURBINE AND COMPRESSOR BEARINGS

Michael Toth, Jr., Fallsington, Pa., and Richard M. Salzmann, Trenton, N.J., assignors to De Laval Turbine Inc., Trenton, N.J.

Filed Oct. 21, 1968, Ser. No. 769,045
Int. Cl. F04d 29/00, 29/08
U.S. Cl. 415-112 5 Claims

In turbines and compressors, leakage of oil from a bearing chamber into gas passages and leakage of gas into the



drawing a stream of air from the same source past a second labyrinthine packing toward the gas passage by taking advantage of the vacuum-producing effect of the flow of gas.

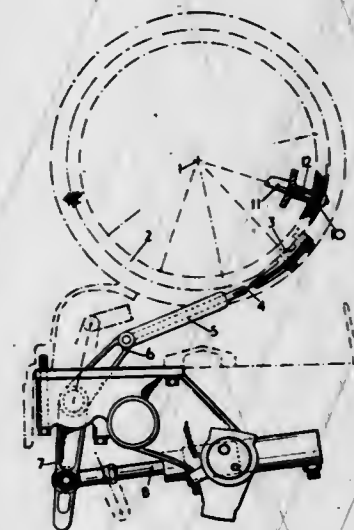
3,574,479

TURBINE HAVING VARIABLE-ANGLE NOZZLE GUIDE VANES

Mark Cary Sedgwick Barnard, Solihull, England, assignor to Leyland Gas Turbines Limited, Solihull, England
Filed Aug. 20, 1969, Ser. No. 851,703

Claims priority, application Great Britain, Sept. 17, 1968, 44120/68
Int. Cl. F01d 17/00

U.S. Cl. 415-160 4 Claims



A turbine being a ring of variable-angle nozzle guide vanes each having a driving pinion engaging an annular rack movable circumferentially to effect simultaneous turning of the vanes, the rack being connected to an actuating member by a leaf spring flexible in a direction toward and away from the circumference of the annular rack, thereby to avoid a pivotal joint between the actuating member and the rack in a very hot region of the turbine.

3,574,480

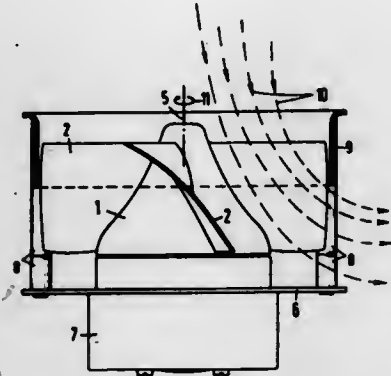
SEMIAXIAL FAN ROTOR
Leo Hoepfner, Neustadt, Aisch, Germany, assignor to Siemens Aktiengesellschaft, Berlin, Germany

Filed Nov. 25, 1968, Ser. No. 778,445
Claims priority, application Germany, Oct. 8, 1968, G6801232.8

Int. Cl. F04d 25/16, 25/06
U.S. Cl. 415-209 4 Claims

The vanes of a fan rotor have an outer contour shaped as a circular arc concentric to the hub axis of the rotor, whereas

the inner contour of the vanes, where the vanes are joined with the hub, have a curvature reversed with respect to that of the outer contour. The outer region of the fan rotor acts



essentially as an axial fan, whereas on account of the reversal and curvature the inner region of the vanes produces a radial fan action.

3,574,481

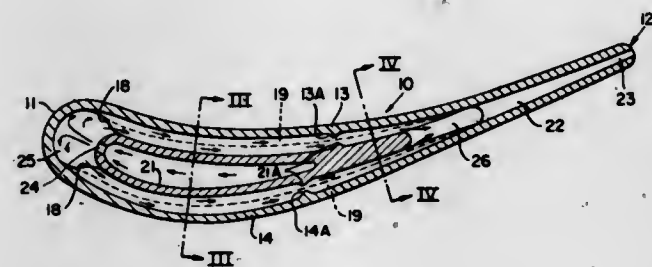
VARIABLE AREA COOLED AIRFOIL CONSTRUCTION FOR GAS TURBINES

James A. Pyne, Jr., Phoenix, and Leslie L. Miller, Scottsdale, Ariz.

Filed May 9, 1968, Ser. No. 727,899
Int. Cl. F01d 5/18

U.S. Cl. 416—90

3 Claims.



A cooled airfoil for gas turbines having a hollow airfoil-shaped body with an impingement tube disposed therein in spaced relation to the sidewalls. Such tube receives a cooling medium and is formed with openings disposed to direct the cooling medium against the inner surface of the leading edge wall. The inner surfaces of the body sidewalls have heat dissipating fins substantially engaging the impingement tube to provide passages extending chordwise of the airfoil to conduct the cooling medium to the rear where it is vented through openings in the airfoil trailing edge. The passage forming fins may be variably spaced and of variable height to vary the cooling medium flow area at predetermined variable height to vary the cooling medium flow area at predetermined regions of the airfoil sidewalls, and other fins of predetermined variable height may be provided in the passages to effect differential cooling effects as required by the temperatures to which different portions of the airfoil are exposed.

3,574,482

TURBOMACHINERY BLADES

Joseph W. Savage, and Henry J. Brands, Cincinnati, Ohio, assignors to General Electric Company

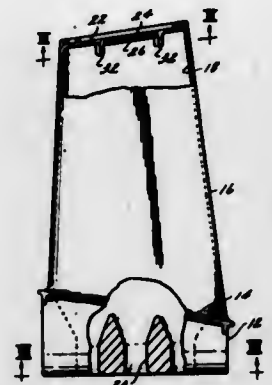
Filed Jan. 23, 1969, Ser. No. 793,434
Int. Cl. F01d 5/18

U.S. Cl. 416—90

5 Claims

A cast, hollow, turbine blade has an opening in its tip end wall formed by a core pin which positioned the core in a

mold as the blade was cast. A plate is brazed to the inner surface of this end wall and seals this opening in a manner



such that the structural integrity of the blade is not dependent on a bonded joint.

3,574,483

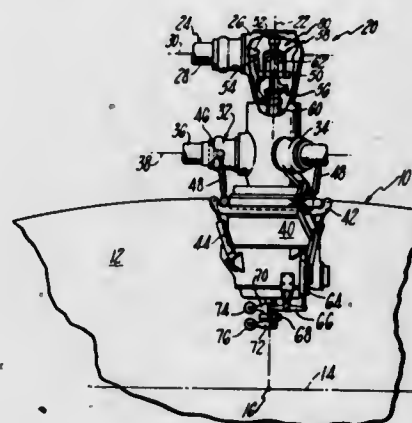
PITCH CONTROL MECHANISM FOR BLADED ROTOR

Arthur W. Linden, Shelton, Conn., assignor to United Aircraft Corporation, East Hartford, Conn.

Filed Sept. 18, 1969, Ser. No. 859,093
Int. Cl. B64c 27/74

U.S. Cl. 416—130

11 Claims



Two Z-crank mechanisms connect at different stations to a rotor swashplate so that translation of the mechanisms causes collective pitch variation of the blades and so that rotation of the mechanisms either together or separately causes cyclic pitch variations of the blades and wherein the portions of the Z-crank mechanisms which connect directly to the rotor swashplate are positioned on opposite sides thereof to permit a minimum diameter installation.

3,574,484

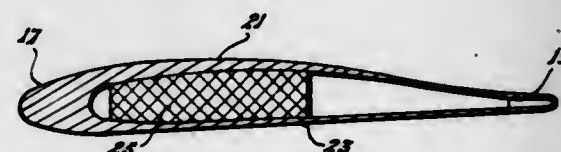
ROTOR BLADE HEAVY CORE TUNING WEIGHT

Harold R. Lamb, Jr., Media, Pa.

Filed May 14, 1969, Ser. No. 824,535
Int. Cl. B64c 27/46

U.S. Cl. 416—144

1 Claim



A helicopter rotor blade includes a honeycomb core within the airfoil contour forming a composite-type rotor blade having the required mass for dynamically tuning the structure. The location and mass of the tuning weight is variable and the composite rotor blade is attachable to the hub in the conventional manner.

3,574,485

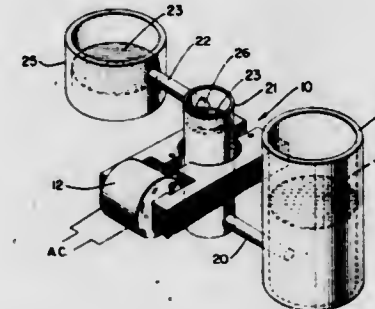
METHOD AND APPARATUS FOR MOVEMENT OF LIQUIDS BY ELECTROMAGNETIC MEANS

Harry H. Herman, Jr., Washington, D.C., assignor to Louis Broido and Joseph A. Broido, New York, N.Y., fractional part interest to each

Original application Nov. 28, 1958, Ser. No. 776,884, now Patent No. 3,371,541, dated Mar. 5, 1968. Divided and this application Mar. 4, 1968, Ser. No. 710,108
Int. Cl. H02k 45/00

U.S. Cl. 417—50

4 Claims



Apparatus for effecting selectively directed motion of contained conducting fluids by selective application of electromagnetic force fields thereto.

3,574,486

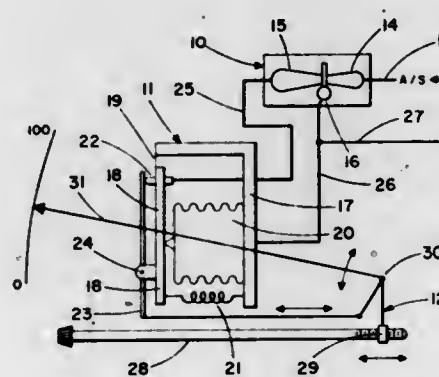
HIGH PRECISION MINIATURE HALF-CONE ASPIRATOR SYSTEM

Hoel L. Bowditch; Robert C. Prescott, Foxboro, and Herbert A. Neuman, Wrentham, Mass., assignors to The Foxboro Company, Foxboro, Mass.

Filed Nov. 1, 1968, Ser. No. 772,598
Int. Cl. F04f 5/16

U.S. Cl. 417—185

1 Claim



In pneumatic instrumentation a miniature aspirator system in which the aspirator form is channelled in one plate of a sandwich unit, to form half-cone passages apex-to-apex. This lends itself to simple manufacturing techniques and pneumatic circuit plate assembly. An example of application is in a nozzle-baffle system, such as a control unit set point transmitter.

3,574,487

PUMP MEANS

Frank Mohn, Krakenes, Fana, Norway, assignor to Patents and Developments A/S, Helldal, Norway

Filed Oct. 14, 1968, Ser. No. 776,826

Claims priority, application Norway, Oct. 18, 1967, 170,172

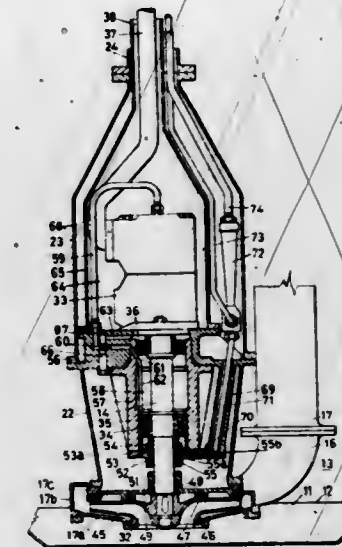
Int. Cl. F04d 13/02

U.S. Cl. 417—409

12 Claims

A pump means for submersion in and transfer of fluid ship's cargo, having a zone between the driving system of the pump and said fluid cargo to receive any leakage of driving medium and fluid cargo and means for controlling the

pressure and regulating the thermal conditions in said zone and for remote controlling the removal of leakage from said



zone. A pump unit comprising said pump means received in a protective rigid casing.

3,574,488

SCREW PUMPS

Stamford Robert Francis Vanderstegen-Drake, Berkshire, England, assignor to Plenty & Son Limited, Newbury, Berkshire, England

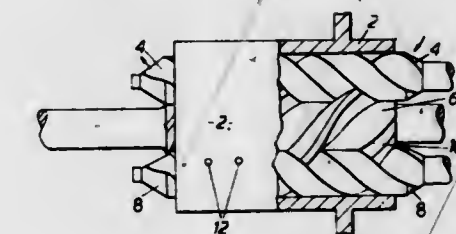
Filed Apr. 17, 1969, Ser. No. 817,109

Claims priority, application Great Britain, Apr. 19, 1968, 18,720/68

Int. Cl. F04c 1/10

U.S. Cl. 418—15

4 Claims



A screw pump of the type having at least two meshing screws with helical flights rotatable in, and having edge sealing with bores formed in a casing, the casing being formed with one or more holes through its wall to communicate with the moving chambers between the screws located towards the discharge end of the pump, the position and size of the holes being such as to allow gradual collapse of cavities in the chambers.

3,574,489

ORBITAL DRIVE AND FLUID MOTOR INCORPORATING SAME

Michel A. Pierrat, Andover, Mass., assignor to Compudrive Corp., Boston, Mass.

Filed Apr. 4, 1969, Ser. No. 813,652

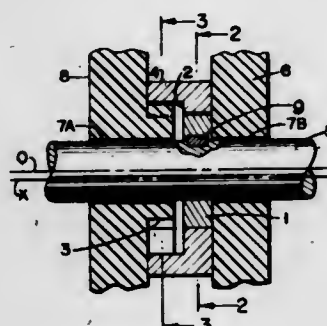
Int. Cl. F01c 1/10, 11/00; F16h 1/28

U.S. Cl. 418—61

17 Claims

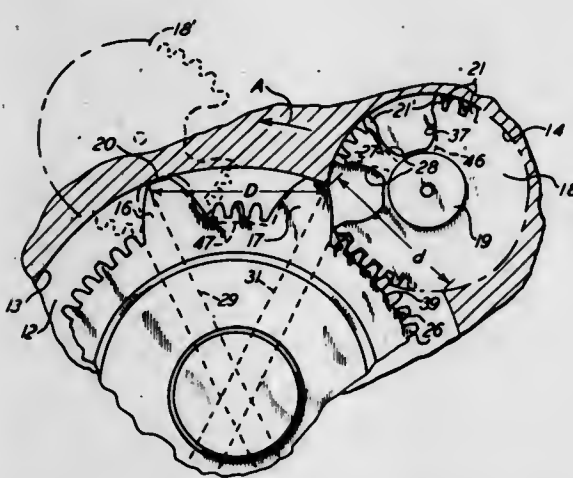
An orbital drive for delivering high torque at low speed ratios comprises two pairs of meshed gears, each pair including an inner externally-toothed gear and an outer internally-toothed orbiting gear arranged to orbit in an eccentric path around its mate. One of the inner gears is stationary and the other is mounted on an output shaft. The orbiting gears are connected to orbit together around the output shaft axis, and may be formed in a common blank. A rotatable ring, concentric with the output axis, has eccentric driving relation with the orbiting gears. This driving relation

may be established by peripheral engagement of these gears in an opening in the ring eccentric to the output axis. The ring member may serve as an input drive to produce orbital motion of the orbiting gears and thereby drive the output shaft, and may be driven mechanically, hydraulically, or electrically. The orbital drive may also serve as an hydraulic or pneumatic motor, pump, or brake, in which the mating



gear teeth form expansible chambers to which working fluid is commutatively directed by ports formed in the ring member. Two or more of these orbital drives may be coupled to a common output shaft and a common input drive to provide added torque transmission capability; their respective orbiting gears are preferably phased apart equiangularly to relieve the output shaft of bending loads.

3,574,490
FLUID PUMP OR MOTOR HAVING ROLLERS
Philip Hartmann, Racine, and Jack E. Lake, Sturtevant, Wis., assignors to Koehring Company, Milwaukee, Wis.
Filed May 21, 1969, Ser. No. 826,505
Int. Cl. F01c 1/00, 21/00, 1/08
U.S. Cl. 418-161 8 Claims

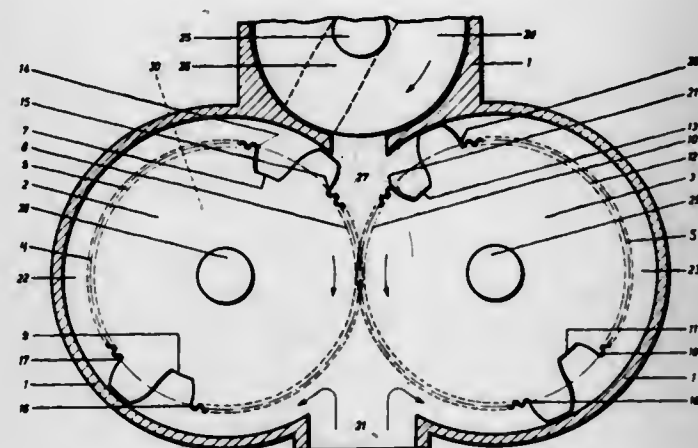


An inner member and an outer member are relatively rotatable, and the members are arranged with fluid passageways, and the members define an annular chamber or working space. One of the members has rollers rotatably mounted to extend into the annular space, and the other of the members has vanes fixed thereto and extending into the annular space. The rollers have pockets for receiving the vanes when the rollers roll over the vanes. The roller pocket surfaces and the vanes are formed to provide rotation timing as the rollers pass over the vanes so that relative rotation of the two members is maintained the same as it is when the vanes are not in the roller pockets.

3,574,491
GEAR-TYPE ROTARY MACHINE
Erich Martin, Kirchenleite 4, 8021 Icking, Germany
Filed Apr. 22, 1969, Ser. No. 818,355
Int. Cl. F01c 1/18
U.S. Cl. 418-205 5 Claims

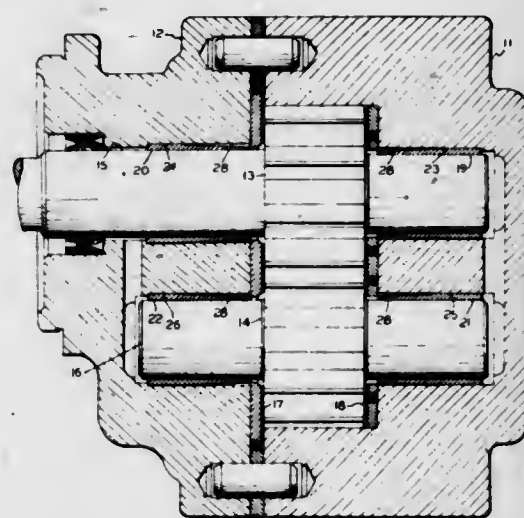
A gear-type rotary machine for transport of liquids or for compression or expansion of gases comprises a housing

accommodating two mating gear-shaped rotors whose shafts are preferably driven by externally mounted torque transmitting gears in such a way that the teeth of rotors are



out of actual metallic contact with each other. The teeth of each rotor include two sets of smaller teeth alternating with one or more larger teeth, but all teeth of each rotor have a common pitch circle.

3,574,492
BUSHING ARRANGEMENT FOR ROTARY SHAFTS
Robert E. Schwary, Kalamazoo County, Mich., assignor to General Signal Corporation
Filed Sept. 26, 1969, Ser. No. 861,350
Int. Cl. F01c 1/18
U.S. Cl. 418-206 14 Claims

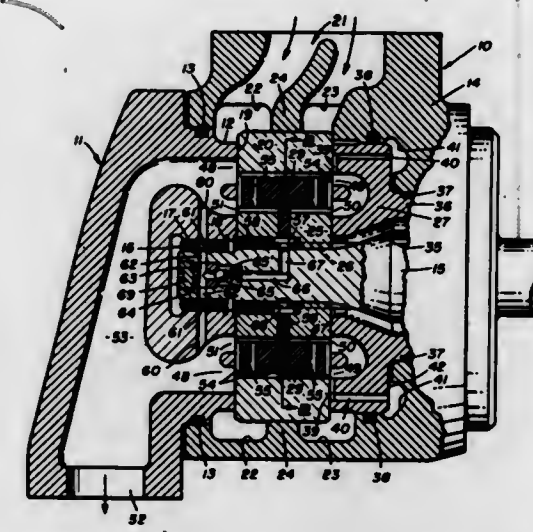


A scheme for reducing corner loading on a plain bearing or bushing employed to support a rotary shaft, such as the gear-carrying shaft of a gear pump or motor, which is subjected to unbalanced radial loads. The scheme consists of a tapered clearance space formed between the outer periphery of the bushing and the wall of the bore in the supporting structure in which the bushing is secured. This space is at least coextensive with the load zone of the bushing in the circumferential direction and extends longitudinally from the overloaded end of the bushing a distance greater than one-half the length of the bushing, but not so far as to preclude a secure fit between the bushing and the bore. Preferably the clearance space surrounds the bushing, and extends over about three-fourths the length of the bushing.

3,574,493
VANE TYPE PUMPS
William M. Hamilton, Hilliard, Ohio, assignor to Abex Corporation, New York, N.Y.
Filed Apr. 21, 1969, Ser. No. 817,827
Int. Cl. F04c 1/00
U.S. Cl. 418-268 10 Claims

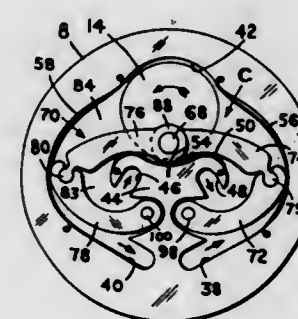
A rotary vane fluid power unit in which a plurality of vanes slidably supported in a rotor are individually maintained in

engagement with an encircling cam surface by fluid pressure acting radially on the inner surfaces of pistons which engage



the vanes. A fluid passageway is provided internally of the pump which includes a valve for maintaining under pressure the fluid that reacts against the pistons.

3,574,494
FLUID MACHINE ESPECIALLY ADAPTED FOR HIGH PRESSURE APPLICATIONS
Friedrich O. Bellmer, Stanhope, N.J., assignor to Worthington Corporation, Harrison, N.J.
Filed Feb. 7, 1969, Ser. No. 797,415
Int. Cl. F01c 21/00
U.S. Cl. 418-270 19 Claims

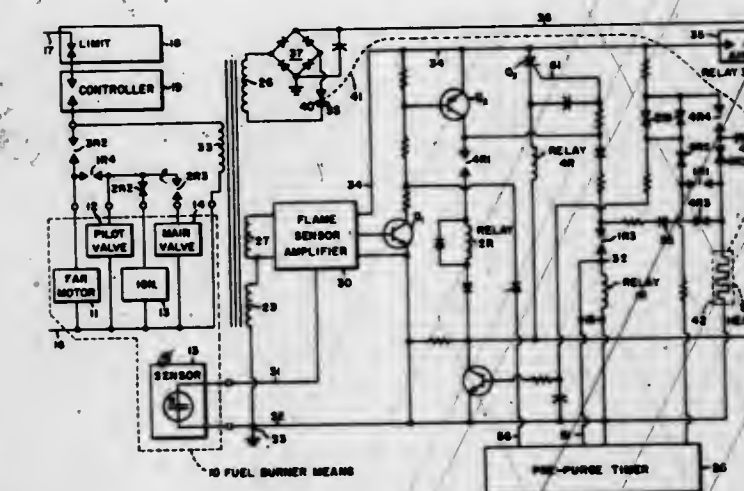


A fluid machine is provided which is operable as a positive displacement pump, or fluid motor, or as a combined fluid motor and pump, and comprises a working member taking the form of a plurality of pivotally interconnected links which divides a working chamber into inner and outer working chambers and is movable through a cycle of operation therewithin to alternately expand and contract respective portions of said inner and outer working chambers. Inlet and outlet passages are provided in fluid flow communication with each of said inner and outer working chambers and are operable to enable the pumping of fluid therethrough when the fluid machine is utilized as a pump, and/or to admit fluid under pressure thereto and exhaust the same therefrom when the fluid machine is utilized as a fluid motor or a combined fluid motor and pump.

3,574,495
BURNER CONTROL SYSTEM
William R. Landis, Richfield, Minn., assignor to Honeywell Inc., Minneapolis, Minn.
Filed Dec. 11, 1969, Ser. No. 884,154
Int. Cl. F23n
U.S. Cl. 431-26 8 Claims

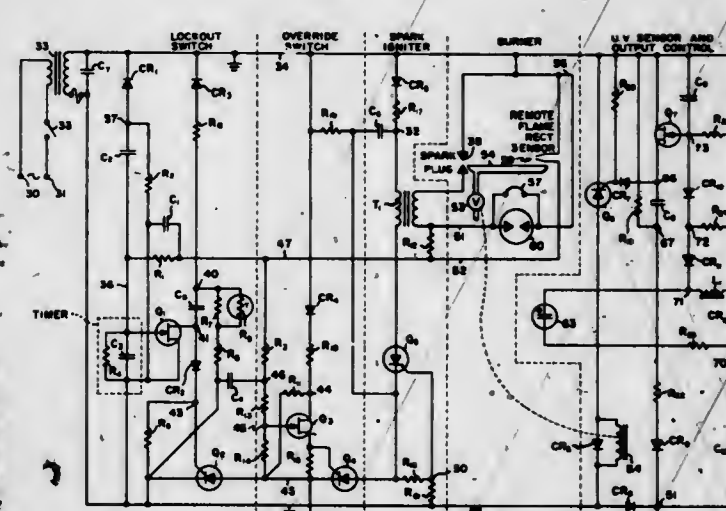
A fuel burner control system which includes a flame detecting unit and an electrically heated safety switch for safely starting and operating a fuel burner. The burner control system utilizes a time delay circuit for purging a combustion chamber prior to a trial for ignition. The system

includes a conventional fan relay, ignition relay, and flame relay, but also includes a fourth relay and series connected silicon-controlled rectifier connected to lock the system out



or cause the safety switch to heat in the event of a loss of flame signal after the system has properly been started, or in the case of a false flame signal occurring during the purge timing period.

3,574,496
DIRECT SPARK IGNITER COMBUSTION SAFEGUARD APPARATUS
William Lloyd Hewitt, Harbor City, Calif., assignor to Honeywell Inc., Minneapolis, Minn.
Filed July 11, 1969, Ser. No. 840,994
Int. Cl. F23n 5/08
U.S. Cl. 431-71 8 Claims

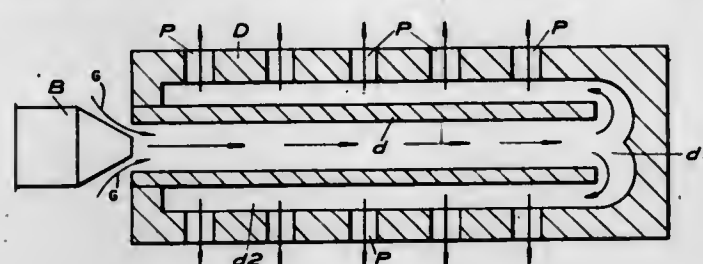


A direct spark igniter combustion safeguard system having two flame sensors, a first of these being an ultraviolet responsive sensor positioned to observe the ignition spark and the resulting flame and connected in controlling relation to the gas valve, and the second sensor being of the flame rectification type for controlling igniter turnoff and also controlling a safety timer and lockout switch.

3,574,497
HEAT DISTRIBUTION SYSTEM FOR HEAT TREATMENT FURNACES
Cyril Henry Rann, Birkenhead, Bradford, and Elizabeth Margaret Hall, Blackhill, Consett, England, assignors to North Eastern Gas Board, Leeds, England
Filed Jan. 28, 1969, Ser. No. 794,670
Int. Cl. F23n 7/00
U.S. Cl. 431-116 3 Claims

Apparatus for high convective heat transfer effect at comparatively low terminal head above the temperature in a

heat treating furnace embodying a high velocity tunnel burner. Within the furnace distribution duct into which gases are projected from the burner, there is provided an inner mixing duct open at both ends and one or more distribution



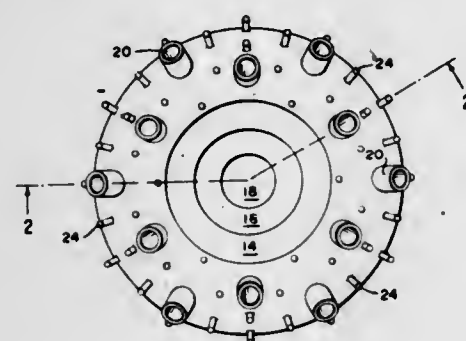
spaces between the two ducts. A plurality of discharge ports are spaced along the length of the distribution duct. Hot gas ports permit a net flow back to the burner with part of the flow reinjected into the furnace by the injector action of the burner and part passing into the flue system.

3,574,498 MULTI-PURPOSE CANDLE HOLDER AND FLOWER ARRANGER

Melvin Zarinsky, 18 Countryside Lane, Marblehead, Mass.
Filed July 10, 1969, Ser. No. 840,718
Int. Cl. F21v 35/00

U.S. Cl. 431-126

4 Claims



A combination candle holder and flower arranger, preferably of molded plastic material, in which concentric, stepped openings are formed centrally to receive candles or other cylindrical members of relatively large diameter and on the curved surface of which tubular taper holders and pins are formed. The tubular taper holders are of suitable depth and diameter to hold relatively long tapers in position and the pins are of suitable diameter and length to accommodate tubular bases of artificial flowers.

3,574,499 IGNITING DEVICE

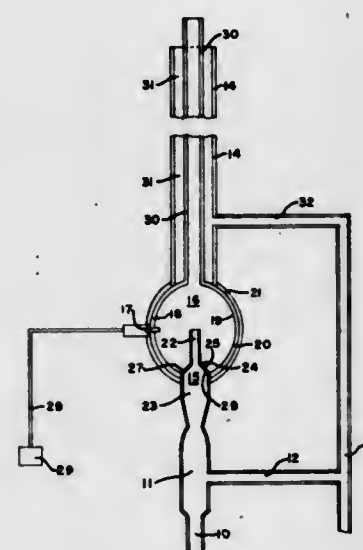
Alexander J. Turpin, Lebanon, Pa., and Irwin C. Grötzing, Houston, Tex., assignors to Said Grötzing assignor to Smoke-Ban Manufacturing Incorporated, Pasadena, Calif.
Filed Oct. 13, 1969, Ser. No. 865,765
Int. Cl. F23r 1/02

U.S. Cl. 431-158

8 Claims

An apparatus comprising (1) a mixing zone in open communication with a source of an oxygen-containing gas and a source of a combustible gas, (2) a combustion chamber having a substantially symmetrical internal configuration and having at least one electrically generated spark-producing means in the sidewall thereof, (3) a tubular injection jet extending from said mixing chamber into said combustion chamber to a point just above said spark-producing means; said injection jet being in open communication at one end thereof with said mixing zone at the other end thereof with said combustion chamber, the upper end of said injection jet having a diameter less than that of said lower end; at least one minor opening through the sidewall of said injection jet into said combustion chamber, said opening being adjacent the lower end of said

jet and having a diameter substantially less than the diameter of said tubular injection jet, and the plane of said opening being in angular relation to the axis of said injection jet, (4) a first conducting tube in open communication at one end thereof with said combustion chamber and opening at its other end adjacent the upper end of the flare stack combustion tip, said combustion chamber and said first conducting tube being in relation such that said combustion chamber bears a volume ratio per unit length of said first



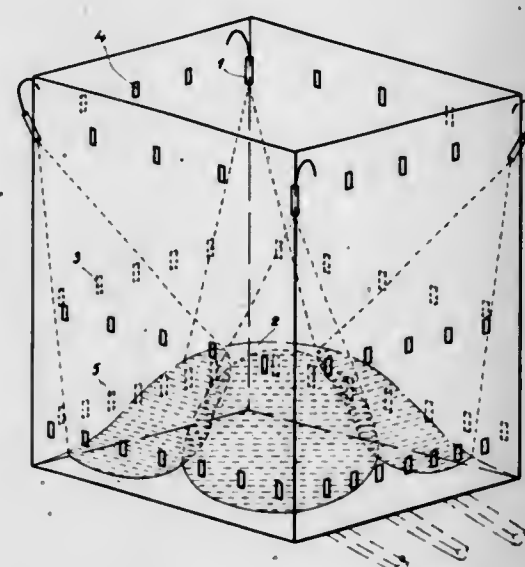
conducting tube within the range of 1.7:1 to 2.25:1, (5) a second conducting tube coaxially aligned with and of greater diameter than said first conduction tube, said second conduction tube being in open communication adjacent its lower end with the source of a combustible gas and being open at its upper end to the atmosphere, said upper end terminating adjacent but below the upper end of said first conducting tube, and (6) means for causing said spark-producing means to create a spark.

3,574,500 WASTE-LIQUOR BURNER AND DISPERSER

Reino T. Huovilainen, Kaleva, Finland, assignor to Oy Tampella Ab, Tampere, Finland
Filed Feb. 20, 1969, Ser. No. 801,049
Claims priority, application Finland, Mar. 1, 1968, 558/68
Int. Cl. F23c 5/00

U.S. Cl. 431-175

3 Claims



The invention relates to a device for burning waste liquor and to the disperser in the form of a nozzle used therein. The liquor is dispersed downwards from the corners of a furnace in showers of droplets in the form of full cones. The distance of the dispersers nozzle outlets from the bottom of the furnace is 45-60 percent of the sum of a narrower and a

broader side of the furnace's bottom plane and the geometrical axis of each of the dispersers is in a plane which forms an angle of 40°-50° with the sidewalls of the furnace, and the axis of each disperser forms an angle of 35°-55° with the vertical line of intersection of the furnace sidewalls.

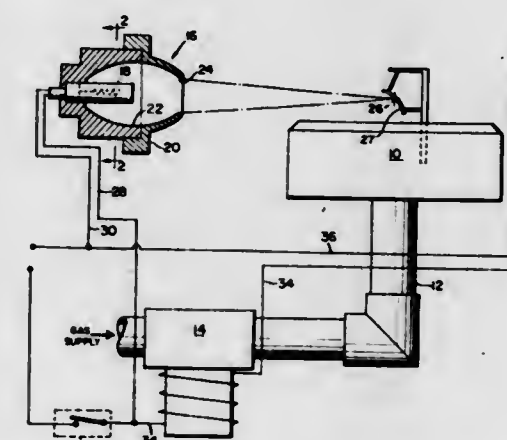
The top angle of the outlet in the outlet member is 60°-90° and the diameter of the outlet is 30-45 percent of the inner diameter of the nozzle body. The body of the nozzle comprises a detachable vortex element having four spiral grooves at an angle of 45°-60° to the transverse axis of the nozzle. The cross-sectional flow area of the grooves is 45-55 percent of the inner cross-sectional area of the nozzle body portion.

3,574,501 ELECTRIC IGNITER

Richard K. Mitts, Fullerton, Calif., assignor to Robertshaw Controls Company, Richmond, Va.
Filed Feb. 12, 1969, Ser. No. 798,743
Int. Cl. F23q 13/00

U.S. Cl. 431-254

4 Claims



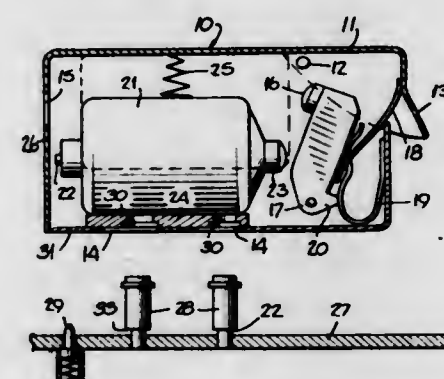
An electric ignition system for burners utilizing an igniter having a source of high intensity light and a reflector for focusing the light at a point within igniting proximity of the burner to provide a point of high temperature for ignition of fuel emanating therefrom.

3,574,502 MECHANISM FOR SHIELDING A CARTRIDGE CONTAINING A PYROPHORIC SUBSTANCE

Douglas S. Fuller, Ockham; Bruce Lester Reid, London; Arthur T. Theobald, Great Bookham, England, and Leandre A. Guenin, Geneva, Switzerland, assignors to Ronson Corporation, Woodbridge, N.J.
Filed July 10, 1968, Ser. No. 743,870
Claims priority, application Great Britain, July 11, 1967, 31921/67
Int. Cl. F23q 2/00

U.S. Cl. 431-267

14 Claims



A mechanism for shielding a cartridge containing a pyrophoric substance in which the cartridge is encapsulated and is placed on an ignition device such as a cigarette lighter.

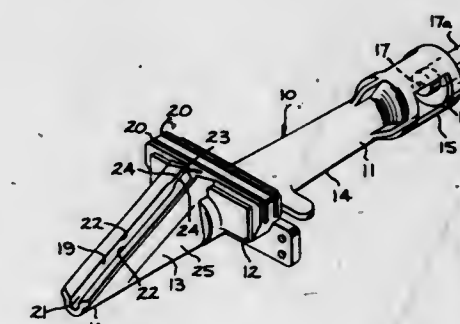
The encapsulated cartridge cannot discharge its flammable contents until it is placed within the confines of the ignition mechanism, thereby rendering the cartridge safe to handle when it is removed from the ignition mechanism.

3,574,503 GAS BURNER

Raymond J. Osmer, Yardley, Pa., assignor to General Electric Company
Filed Oct. 20, 1969, Ser. No. 867,850
Int. Cl. F23d 13/26

U.S. Cl. 431-286

5 Claims



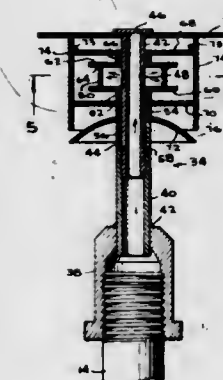
A gas burner has a venturi portion, a crossover portion downstream of the venturi portion and a head portion downstream of the crossover portion. The head portion includes an elongated inclined port from which a gas and air mixture issues for combustion adjacent thereto. The port has a lower region of enlarged width and an upper region of reduced width, each region being defined by a pair of spaced parallel edges. The region of reduced width has its upper termination adjacent the crossover portion whereby ignition of the gas and air mixture issuing from the port may be effected from a flame present at the crossover portion. The region of reduced width minimizes burn back.

3,574,504 WINDPROOF OPEN FLAME GAS BURNER

John T. Breslin, Washington, D.C., assignor to Washington Gas Light Company, Washington, D.C.
Filed Aug. 18, 1969, Ser. No. 850,707
Int. Cl. F23d 13/14

U.S. Cl. 431-329

10 Claims



A windproof open flame gas-burner apparatus comprising a plurality of gas-permeable vertical baffle means symmetrically placed in front of apertures in the gas supply tube, a nongas-permeable horizontal baffle means superposed over one of the gas-permeable vertical baffle means and additional horizontal gas-permeable barrier means

symmetrical to the gas supply tube positioned on both sides of one of the vertical baffle means and within another of the vertical baffle means, an additional gas-permeable horizontal barrier means positioned transversely and above the outer of the plurality of said gas-permeable vertical baffle means through which the flame normally passes in order that wind approaching the gas burner must pass through a variety of wind velocity reducing baffle means and barrier means before being able to extinguish the flame supported at the leeward side of the gas burner.

3,574,505

HEATING UNIT FOR COOKING

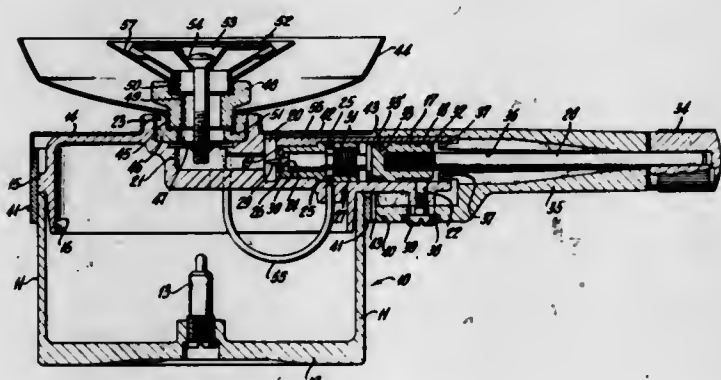
Everett L. Kimball, Stroudsburg, Pa., assignor to Ronson Corporation, Woodbridge, N.J.

Filed June 23, 1969, Ser. No. 835,531

Int. Cl. F23c 13/04

U.S. Cl. 431—344

6 Claims



A fuel burning unit for cooking food in which a variable air supply is combined with a variable fuel supply mechanism to provide a uniform stable flame in which gas consumption is held to an efficient minimum. The air supply is varied by changing the size of an air admitting opening which is on the exterior portion of the fuel burning unit. The air opening is varied in size by reciprocal movement of a handle located on the fuel burning unit whereby desired amounts of air can be admitted into the unit to be mixed with a desired amount of fuel which can be ignited to produce a stable flame.

3,574,506

BLOW TORCH BURNER

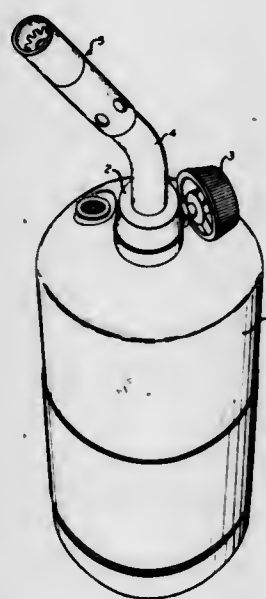
Joseph K. Locke, De Kalb, Ill., assignor to Bernzomatic Corporation, Rochester, N.Y.

Filed July 29, 1968, Ser. No. 748,436

Int. Cl. F23d 13/40

U.S. Cl. 431—349

9 Claims



A blowtorch burner having a section formed as a jet pump which leads into a cylindrical sleeve provided with a flame

holder. A gas conduit with a gas flow orifice leads into the inlet section of the jet pump, which is provided with peripheral air inlet ports, the orifice constituting the nozzle of the pump. The flame holder in connection with the construction producing a pencil-type flame has a central axial passage and a peripheral gas flow passage with a greater cross-sectional area at its exit than at its inlet in order to provide a mantle of slow moving gas. In connection with a utility-type flame, the flame holder has a central diverter with peripheral gas flow passages extending therearound.

3,574,507

AIR/FUEL MIXING AND FLAME-STABILIZING DEVICE FOR FLUID FUEL BURNERS

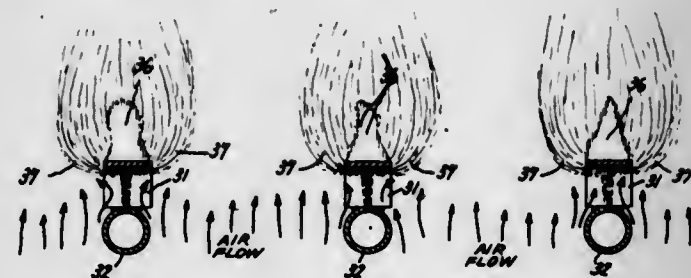
Paul H. Kydd, Scotia, N.Y., assignor to General Electric Company

Filed July 31, 1969, Ser. No. 846,548

Int. Cl. F23d 13/24

U.S. Cl. 431—350

5 Claims



Baffle means are located in the paths of fluid fuel streams issuing at high velocity from a plurality of jet orifices in an elongate burner pipe. These downstream baffles significantly laterally deflect the fuel streams and result in both the promotion of fuel/air mixing and the provision of low-velocity flame-stabilizing regions.

3,574,508

INTERNALLY FIRED INDUSTRIAL GAS BURNER

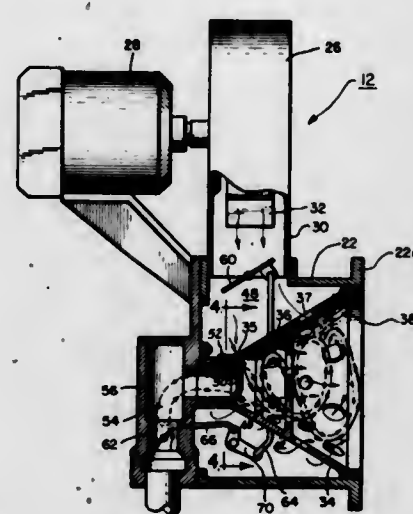
Charles W. Rothhaar, Muncie, and Guy Richard Harter, New Castle, Ind., assignors to Maxon Premix Burner Company, Inc., Muncie, Ind.

Filed Apr. 15, 1968, Ser. No. 721,461

Int. Cl. F23d 15/00

U.S. Cl. 431—351

19 Claims



A burner assembly includes a mixing and ignition chamber of a conical contour with the gaseous fuel being introduced through a series of nozzle discharge ports at the small end of the cone and directed generally parallel to the diverging cone surface. The combustion air is introduced into the cone through a plurality of cone apertures arranged in a series of axially spaced stages. Preferably, the cone apertures are canted to develop a swirling of the air about the cone center axis thereby enhancing fuel-air intermixture, ignition control and flame retention. A series of inwardly projecting

circumferential bosses are preferably formed on the interior cone surface between respective aperture stages to divide the burner into a series of firing zones and also further enhance the aforesaid characteristics. Other features are disclosed.

3,574,509

BACKWASH FILTER

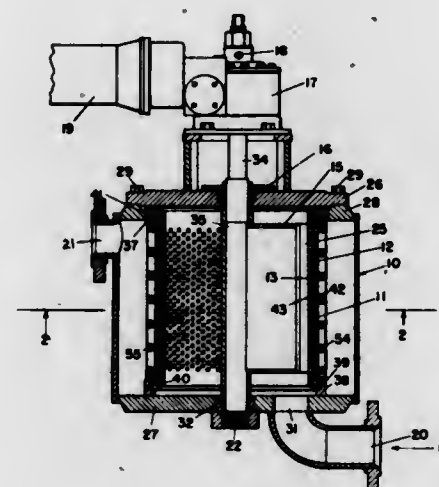
Ramon J. Zentis, McKean, Pa.; John R. Goode, Westport, Conn.; Donald F. Durso, Memphis, Tenn., and John H. Schmid, Erie, Pa., assignors to Zurn Industries, Inc., Erie, Pa.

Filed Feb. 14, 1969, Ser. No. 799,422

Int. Cl. B01d 29/38

U.S. Cl. 210—107

16 Claims



A filter for liquid and a control. The filter element is made up of two concentric perforated cylinders which restrain a very fine wire mesh between them, this assembly being supported in a hollow body. Liquid is fed into the inside of the filter element and flows to an outlet, by way of the perforations, through the mesh. The perforations form cavities which serve as reservoirs on the inside of the mesh. A backwash arm is rotated about an axis at the center of the filter element. The backwash arm has a slot defined by shaped members which sealingly sweep over the inner periphery of the filter element. Thus, debris which accumulates in the perforations is washed back through the slot in the arm and to a waste system by the impetus of the pressure on the downstream side of the filter element. The control is made to actuate the backwash arm at a rate of speed such that it will make a sweep around the inner periphery of the filter element only as required to clean the

3,574,510

CONCEALED MEANS FOR JOINING ABUTTING ELEMENTS

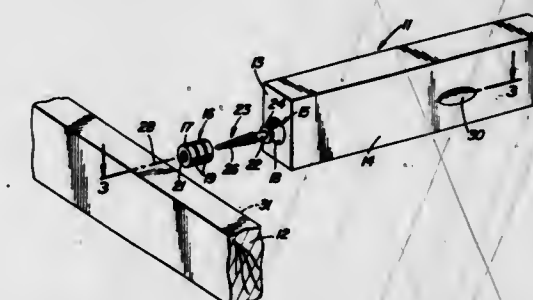
Patricio Herman, 1954 Tacoma St., Cuyahoga Falls, Ohio

Filed Mar. 5, 1969, Ser. No. 804,415

Int. Cl. F16b 12/10

U.S. Cl. 287—20.924

5 Claims



A concealed means for joining two abutting elements. The first element has at least an engaging surface and an access surface oriented angularly with respect to the engaging surface. An anchor means is secured within the engaging surface such that the axis thereof extends outwardly from the engaging surface. The second element also has an engaging surface that can be abutted to the engaging surface of the first element. The first element has an ingressive passage that opens through its access surface and communicates with the anchor means. The ingressive passage is oriented obliquely to the axis of the anchor means, and the actual fastening of the first and second elements is achieved by a screw means that extends through the anchor means of the first element and penetrates the engaging surface of the second element. Tightening and loosening the screw means is accomplished by driving means having a flexible shaft for negotiating the oblique intersection of the ingressive passage with the axis of the anchor means and for permitting actuation of the screw means by rotation of the shaft from exteriorly of the first element.

CHEMICAL

3,574,511 COLORED POTASSIUM SULFATE AND METHOD OF MANUFACTURE

Albert F. Boeglin, Carlsbad, N. Mex., assignor to International Minerals and Chemical Corporation
No Drawing. Filed May 9, 1966, Ser. No. 548,383
Int. Cl. D06p 3/00, 5/00; C01d 5/00

U.S. Cl. 8—3 13 Claims
Potassium sulfate crystals containing in the lattice a small amount of dye to impart the desired colour are made by crystallizing the potassium sulfate from a saturated solution of potassium sulfate mother liquor containing a small amount of a sulfate or sulfonate radical-containing dyestuff and a small amount of a sulfate or sulfonate radical-containing surface-active agent.

3,574,512 PROCESS FOR THE CONTINUOUS DYEING OF ARTICLES MADE OF POLYACRYLONITRILE OR COPOLYMERS CONTAINING ACRYLONITRILE

Johann Weber, deceased, late of Cologne-Flittard, Germany, by Helene Weber, heir and legal representative of minor heirs, Kohlscheld-Bank, and Rutger Neef, Leverkusen, Germany, assignors to Farbenfabriken Bayer Aktiengesellschaft, Leverkusen, Germany
No Drawing. Filed Nov. 1, 1968, Ser. No. 773,979
Claims priority, application Germany, Nov. 11, 1967, P 16 19 550.9; Nov. 29, 1967, P 16 19 552.1
Int. Cl. D06p 3/76

U.S. Cl. 8—4 11 Claims
Process for continuous dyeing of articles of polyacrylonitrile or copolymers containing at least 80% acrylonitrile by impregnating said articles with an aqueous liquor containing cationic dyestuffs and at least one partially or completely hydrogenated thiophen-1,1-dioxide compound.

3,574,513
PRINTING AND DYEING PROCESS
Walther Wolf, Leverkusen, Johannes Elbl, Burscheld-Kaltenherberg, and Karl Wojatschek, Cologne-Dellbrueck, Germany, assignors to Farbenfabriken Bayer Aktiengesellschaft, Leverkusen, Germany
No Drawing. Filed Apr. 10, 1969, Ser. No. 815,191
Claims priority, application Germany, Apr. 20, 1968, P 17 69 210.3
Int. Cl. D06p 5/00, 5/04

U.S. Cl. 8—4 1 Claim
Cellulose ester and linear polyesters are dyed with disperse dyes from a bath containing N-substituted phthalimides. Alkyl, haloalkyl, acyloxyalkyl, carboxyalkyl alkoxy carbonyl and alkoxy alkyl radicals substituted on the N-group of the phthalimide are examples of the phthalimide.

3,574,514
NAPHTHOIC ACID ARYLAMIDE, AMINOBENZENE-AZO-NAPHTHALENE ALKALI METAL SULFITE MODIFIED FORMALDEHYDE AROMATIC HYDROXY COMPOUND AND OMEGA-SULFOMETHYL HYDROXYNAPHTHALENE-SULFONIC ACID CONDENSATION PRODUCT FOR DYEING CELLULOSE ACETATE AND AROMATIC POLYESTER

Helmüt Arm, Langen, Hasso Hertel, Offenbach (Main), and Rudolf Löwenfeld, Buchschlag, Germany, assignors to Farbwerke Hoechst Aktiengesellschaft vormals Meister Lucius & Bruning
No Drawing. Filed May 3, 1968, Ser. No. 726,579
Claims priority, application Germany, May 5, 1967, F 52,330

U.S. Cl. 8—44 5 Claims
Dyeing preparations for the manufacture of water-insoluble azo dyestuffs on textile material of aromatic

polyesters or triacetyl cellulose consisting of (a) an arylamide of 2,3-hydroxynaphthoic acid, (b) a 4-amino-1-benzene-azonaphthalene, (c) a water-soluble condensation product of an aromatic hydroxy compound and an aromatic- ω -methane-sulfonic acid, and (d) water.

3,574,515 PROCESS FOR DYEING AND PRINTING OF CELLULOSE FIBRE MATERIALS USING A COPPER AMMINE COMPLEX OF TRIMETHYLAMINE-TRICARBOXYLIC ACID

Andreas Huppertz, Cologne-Mulheim, and Gunther Naumann and Walther Wolf, Leverkusen, and Hellmut Berg, Leverkusen-Mathildenhof, Germany, assignors to Farbenfabriken Bayer Aktiengesellschaft, Leverkusen, Germany
No Drawing. Filed July 5, 1968, Ser. No. 742,705
Claims priority, application Germany, July 15, 1967, F 52,977

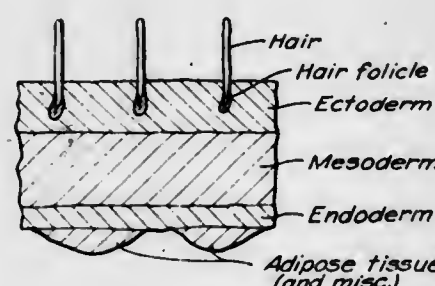
U.S. Cl. 8—54.2 3 Claims
In the dyeing and printing of cellulose fibre materials, the fibre is treated with an imino-isoidolenine in the presence of a copper ammine complex of trimethylamine-tricarboxylic acid.

3,574,516
DEHAIRING OF HIDES AND SKINS
Eckhart Heidemann, Darmstadt, and Fritz Hahn, Frankfurt am Main, Germany, assignors to Deutsche Gold- und Silber-Scheldeanstalt vormals Roessler
No Drawing. Filed Mar. 28, 1966, Ser. No. 537,671
Int. Cl. C14c 1/06

U.S. Cl. 8—94.16 7 Claims
A method of dehairing skins and hides consisting of treating the skins and hides with an aqueous solution containing an inorganic per compound and an inorganic base at a pH of about 10 to 13.5 until the hair is sufficiently loosened to permit its mechanical removal from the skins and hides.

3,574,517
CURING AND PRETANNAGE OF HIDES
Don S. Elvrum, 6233 Saylla Lane, Los Angeles, Calif. 90042
Filed July 19, 1967, Ser. No. 654,432
Int. Cl. C14c 1/00, 1/06

U.S. Cl. 8—94.16 12 Claims



Hides may be cured and pretanned by: treating raw hides with a sodium hydroxide solution so as to react the lipid material in order to cause formation of soaps, limited attack on protein material present in the hides, and swelling of the collagen in the hides; adding sodium

APRIL 13, 1971

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chloride to the sodium hydroxide solution in order to enable this salt to be taken up from the solution by the hides, causing an increase in the strength of the swollen collagen; dehairing the hides; treating the hides with sodium sulphite solution so as to add strength to the swollen collagen; treating the hides with a mixture of a quaternary ammonium salt, and a calcium salt in order to precipitate any soaps present and to place the ammonium salt within the remaining hide material and to separate fascia tissue from the remaining hide material; and pickling the hides with an acid solution so as to effect a size reduction and strengthening of the swollen collagen. If desired, the hides may be bated prior to being pickled. The so-cured hides have properties which are related to the properties of the ammonium salt. The resulting hides can be further treated in accordance with conventional tanning practices.

3,574,518 COLLAGEN MATRIX WATERPROOFING WITH CHROMIUM COMPLEXES CONTAINING RADICALS OF LONG CHAIN HYDROCARBONS AND FLUORINATED HYDROCARBONS AND PRODUCT SO PRODUCED

Peter D. Detomaso, St. Paul, Minn., assignor to Minnesota Mining and Manufacturing Company, St. Paul, Minn.
No Drawing. Continuation-in-part of application Ser. No. 537,685, Mar. 28, 1966. This application Dec. 11, 1968, Ser. No. 783,138

U.S. Cl. 8—94.21 8 Claims
A process for improving the dynamic water resistance of a porous collagen fiber matrix treated with a chromium complex capable of imparting water repellency thereto which comprises treating said matrix after tanning and while water wetted with an aqueous float liquor containing a low molecular weight urethane adduct of an organic isocyanate and an alcohol, said adduct having a melting point below about 200° C., a molecular weight below about 10,000, and at least 0.5 urethane groups per 1000 molecular weight of adduct, the weight ratio of said urethane adduct to said chromium complex being from 1/9 to 9/1 and the combined weight of said urethane adduct and said chromium complex being from 1.5 to 5 percent based on the dry weight of said collagen fiber.

3,574,519
METHOD FOR BLEACHING TEXTILES
Robert M. Lincoln, Moylan, and Joseph A. Meyers III, Springfield, Pa., assignors to Atlantic Richfield Company, Philadelphia, Pa.
No Drawing. Filed Oct. 2, 1968, Ser. No. 764,639
Int. Cl. D06l 3/02

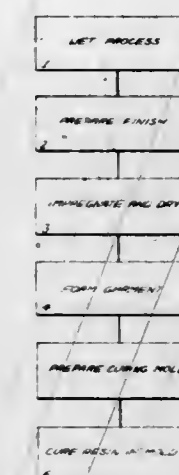
U.S. Cl. 8—111 7 Claims
Bleaching of textile materials by vapor phase treating the fabric with an organic hydroperoxide as the bleaching agent.

3,574,520
TREATING CELLULOSIC GARMENTS WITH A
s-TRIMETHYLOL TRIAZINE TRIOL, BUFFERED MAGNESIUM CHLORIDE, AND
METHYLOL STEARAMIDE

William E. Aldrich, Cranston, R.I., assignor to Warnaco Inc., Ashaway, R.I.
Filed Nov. 2, 1966, Ser. No. 591,488
Int. Cl. D06m 13/10, 13/34, 13/52

U.S. Cl. 8—115.6 3 Claims
A process for producing wrinkle resistant garments and fabrics. The garment or fabric is impregnated with a resin

finishing bath comprising s-1,3,5-trimethylol triazine-2,4,6-triol, is partially dried so as to have a moisture content



of 8 to 10% and is cured using pressure at a temperature of about 300 to 350° F. for about two minutes.

3,574,521 MODIFICATION OF CELLULOSIC TEXTILE MATERIALS WITH DIVINYLSULFONE PRECURSORS

Giuliana C. Tesoro, Dobbs Ferry, N.Y., and Paul I. Linden, North Arlington, N.J., assignors to J. P. Stevens & Co., Inc., New York, N.Y.
No Drawing. Continuation-in-part of applications Ser. No. 826,133, July 10, 1959, and Ser. No. 51,778, Aug. 25, 1960. This application Jan. 3, 1961, Ser. No. 79,988
Int. Cl. D06m 13/28; C08b 11/04, 19/06

U.S. Cl. 8—116.2 11 Claims
Active hydrogen containing polymers are modified in the presence of an alkaline catalyst with divinyl sulfone precursors.

3,574,522
IN SITU CATALYSIS OF THE REACTION OF
CELLULOSE WITH UNSATURATED COMPOUNDS
Stanley P. Rowland, New Orleans, and Mary Ann F. Brannan, Metairie, La., assignors to the United States of America as represented by the Secretary of Agriculture
No Drawing. Filed Oct. 7, 1968, Ser. No. 765,613
Int. Cl. D06m 13/12, 13/28, 13/40

U.S. Cl. 8—116.2 12 Claims
The present invention relates to novel processes by which substituent groups and crosslinks can be introduced into cellulose and other polymeric compositions containing reactive hydroxyl groups. The novel processes of this invention and the novel product of this invention are based on the discovery that quaternary ammonium and tertiary amino hydroxide groups developed as substituents in polymeric compositions, catalyze the reaction of activated vinyl compounds with the hydroxyl groups of these polymers.

3,574,523
SOLVENT BONDING OF SYNTHETIC FIBERS
Richard E. Hodson, Jr., West Point, Ga., and Walter C. Monk, Jr., Fairfax, Ala., assignors to West Point Pepperell, Inc.

No Drawing. Continuation of abandoned application Ser. No. 292,113, July 1, 1963. This application Jan. 14, 1969, Ser. No. 802,712
Int. Cl. C09j 5/02; D04h 1/06

U.S. Cl. 8—130.1 1 Claim
Synthetic fibers are bonded together through treatment with a multicomponent liquid which upon initial contact with the fibers is a non-solvent therefor but which upon evaporation of one of the component becomes a fiber solvent.

3,574,524 COMPOSITIONS USEFUL FOR CLEANING ARTICLES COMPOSED OF POLYESTER AND CELLULOSIC FIBERS

Julian J. Hirshfeld, Decatur, Ala., assignor to
Monsanto Company
No Drawing. Filed May 12, 1967, Ser. No. 637,902
Int. Cl. B08b 3/00

U.S. Cl. 8-137

6 Claims

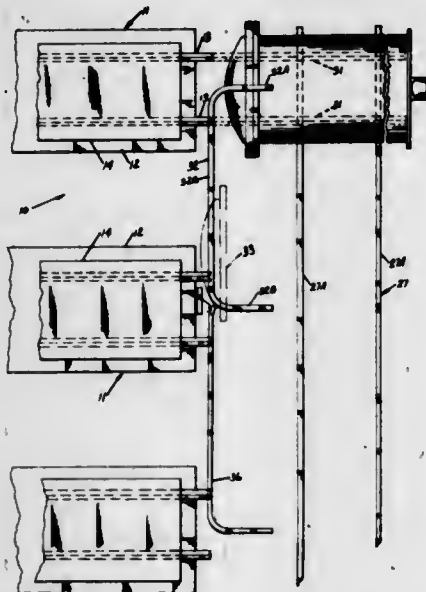
This invention relates to a novel composition useful for washing an article composed of polyester and cellulosic fiber, the composition comprised of a synthetic detergent selected from the group consisting of anionic, nonionic and/or amphoteric surface active compounds, an organic builder selected from the group consisting of amino lower alkylidene phosphonic acids and their water soluble salts and a polyester-fiber swelling agent. Also, the invention relates to a novel method of washing such an article with the above composition.

3,574,525 METHOD AND APPARATUS FOR HIGH TEMPERATURE DYEING

Kenneth R. Dennick, 1161 York Ave.,
New York, N.Y. 10021
Filed Nov. 12, 1968, Ser. No. 774,905
Int. Cl. D06p 7/00

U.S. Cl. 8-147

10 Claims



A method and apparatus for high temperature dyeing wherein a single pressure vessel is utilized in conjunction with a plurality of dye bath means. The pressure vessel is moveably supported so as to be disposed opposite a dye bath means adapted to be inserted therein. A pressure vessel closure for effecting the sealing of the dye bath within the pressure vessel is supported for movement between an operative and inoperative position. In operation one of the dye bath means is being operated upon within the pressure vessel to affect a dyeing operation, while another dye bath means is being prepared for insertion. Upon completion of the dyeing operation the dye bath means within the pressure vessel is removed and the pressure vessel is moved laterally opposite the other dye bath means in position to receive the same to repeat the dyeing operation.

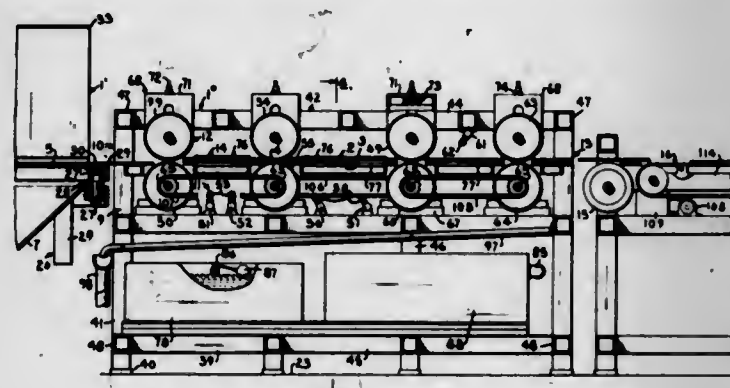
3,574,526
RUG CLEANING APPARATUS AND METHOD
Jeffrey K. Bell, 7845 Summit, Kansas City, Mo. 64114
Filed Apr. 7, 1969, Ser. No. 814,096
Int. Cl. A47l 11/00; D06g 1/00

U.S. Cl. 8-149.1

13 Claims

Rug cleaning apparatus includes a horizontal resiliently mounted screen positioned to receive and support a rug

having a nap or pile side engaging the screen and vibrating means associated with the screen for vibrating the screen and rug thereon for removing foreign material therefrom and collecting same in a collection chamber below the screen where vacuum means removes the foreign material. An elongate frame is positioned adjacent the vibrating screen and carries rug moving means positioned thereon to receive the rug and move same along the frame, said rug moving means being in the form of a plurality of rollers arranged in longitudinally spaced and



aligned pairs with the rollers in each pair being vertically spaced apart. Path defining means guides the moving rug between the vertically spaced pairs of rollers thereby positioning same above a plurality of longitudinally spaced elongate spray bars each having a plurality of spray nozzles for directing overlapping sprays of cleansing and rinsing fluid against the nap side of the rug. Belt conveying means are positioned to receive the rug from the frame and move same adjacent a plurality of heating elements for drying the rug and the belt conveying means moves the heated and dried rug adjacent fan means for cooling same.

3,574,527 PROCESS FOR THE DYEING OF FIBRE MATERIALS OF POLYACRYLONITRILE OR COPOLYMERS CONTAINING ACRYLONITRILE

Klaus Walz, Leverkusen-Wiesdorf, Walter Hees, Cologne-Hoehenberg, and Mathieu Ouaedvilleg, Opladen, Germany, assignors to Farbenfabriken Bayer Aktiengesellschaft

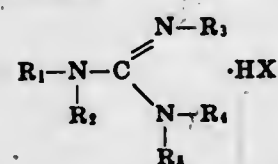
No Drawing. Filed July 25, 1968, Ser. No. 747,451
Claims priority, application Germany, Aug. 4, 1967, F 53,146

Int. Cl. D06p 5/06

U.S. Cl. 8-172

3 Claims

Process for dyeing fibers containing at least 80% by weight polyacrylonitrile with cationic dyestuffs in level and deep shades by using as dyeing auxiliaries a guanidine compound of the formula



where the R's and X are as defined hereinbelow.

3,574,528
HAIR ROLLER DISPENSER
Michael A. Siano, 58 Scribner Ave.,
South Norwalk, Conn.
Filed Oct. 22, 1968, Ser. No. 769,504
Int. Cl. A61l 3/00

U.S. Cl. 21-91

5 Claims

The disclosed dispenser is a timesaving device for storing disinfecting and dispensing hair rollers for the type commonly used by ladies' hairdressers. A frame contains a

3,574,530 METHOD OF REMOVING SULFUR DIOXIDE FROM WASTE GASES

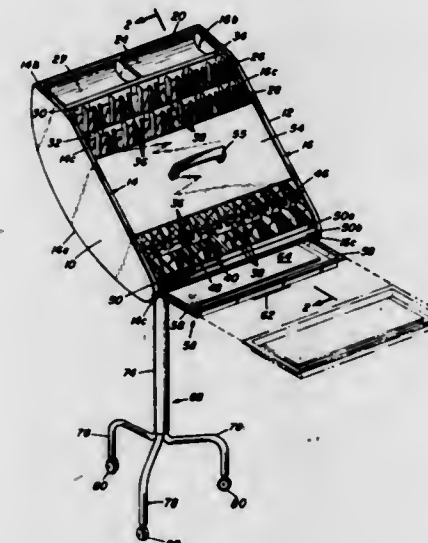
Ernesto Suriani, Freehold, N.J., and Thomas H. Milliken, New York, N.Y., assignors to Pullman Incorporated, Chicago, Ill.

Filed Oct. 2, 1967, Ser. No. 672,166

Int. Cl. B01d 53/34

U.S. Cl. 23-2

24 Claims



which would otherwise clog the chutes. A drawer-like tray is provided beneath the roller racks for containing a volatile disinfectant such as formaldehyde. Vapors from the disinfectant are permitted to circulate upward through the dispenser and through perforations in the roller racks to keep the stored rollers in a disinfected condition. The dispenser is made portable by mounting it upon a caster base.

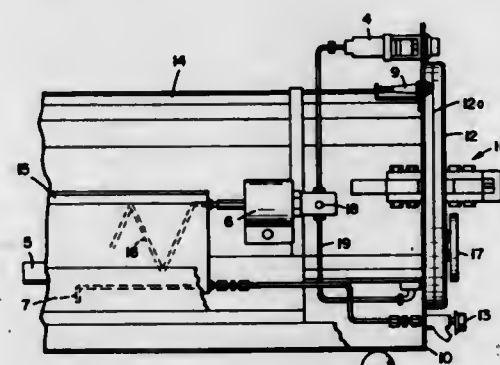
3,574,529 AUTOMATIC STERILIZING AUTOCLAVE

Harold D. Larro, 1865 SW. Fernwood Drive,
Lake Oswego, Ore. 97034
Continuation-in-part of abandoned application Ser. No. 449,541, Apr. 20, 1965. This application Jan. 3, 1969, Ser. No. 788,814

Int. Cl. A61l 3/00

U.S. Cl. 21-94

12 Claims



An autoclave for sterilizing articles by steam under pressure with fully automatic operation throughout a sterilizing cycle. An automatically controlled valve in the air-steam exhaust passageway from the autoclave pressure chamber closes the exhaust passageway only at a preselected temperature in order to first exhaust air from the pressure chamber at the beginning of the sterilizing cycle, and opens the exhaust passageway after a predetermined period at the end of the sterilizing cycle, at which time the heating element is also automatically cut off. During the sterilizing cycle, non-sterile pockets of air in the pressure chamber are automatically purged through the air-steam exhaust passageway by the automatic control valve.

3,574,531
STRONTIUM EXTRACTION PROCESS
Wallace W. Schulz, Richland, Wash., assignor to the United States of America as represented by the United States Atomic Energy Commission

No Drawing. Filed May 15, 1969, Ser. No. 825,073

Int. Cl. C22b 59/00; C01f 11/00, 17/00

U.S. Cl. 23-18

7 Claims

A process for recovering strontium and lanthanide rare earth values from an aqueous nuclear reactor fuel reprocessing waste solution containing these and other values by adjusting the pH, adding a buffering agent and a complexing agent, which will complex all cations present except the alkali and alkaline earth metals, to the waste solution and contacting the aqueous feed solution so obtained with an organic extractant consisting of di(2-ethylhexyl) phosphoric acid and dibutyl butyl phosphonate in a hydrocarbon diluent, whereby the strontium and lanthanide rare earth values are extracted.

3,574,532

WASH TREATMENT TO RESTORE THE DEGRADED D2EHPA-TBP USED IN FISSION PRODUCT EXTRACTION

Wallace W. Schulz, Richland, and Samuel J. Beard, Kennewick, Wash., assignors to the United States of America as represented by the United States Atomic Energy Commission

No Drawing. Filed Mar. 20, 1969, Ser. No. 809,032
Int. Cl. C22b 59/00

U.S. Cl. 23—22 1 Claim
A process is disclosed for restoring the cerium (IV) extraction capacity of a chemically and/or radiolytically degraded solvent consisting of di(2-ethylhexyl) phosphoric acid and tributyl phosphorate in a hydrocarbon diluent. The degraded solvent is treated with an aqueous solution of potassium permanganate and a mineral acid, preferably nitric acid.

3,574,533

METHOD OF PREPARING BERYLLIUM NITRATE SOLUTIONS

Paul T. Godesiabols, Boulder, Colo., assignor to the United States of America as represented by the United States Atomic Energy Commission

Filed May 13, 1969, Ser. No. 824,207
Int. Cl. C01f 3/00

U.S. Cl. 23—102 5 Claims
A method for obtaining beryllium nitrate solutions comprising first dissolving beryllium in a methyl alcohol-carbon tetrachloride mixture, filtering the resulting solution, evaporating the filtrate to a dry residue, and dissolving the residue in nitric acid.

3,574,534

PRODUCTION OF SODIUM TRIPOLYPHOSPHATE HEXAHYDRATE

Kenneth J. Shaver, 32 Millbrook Lane 63122, and Chung Yu Shen, 9528 Laguna Drive 63132, both of St. Louis, Mo.

No Drawing. Filed July 25, 1967, Ser. No. 655,780
Int. Cl. C01b 25/30, 25/38

U.S. Cl. 23—107 6 Claims
An improvement to the process wherein a strong base is added to an aqueous medium containing sodium trimetaphosphate to thereby form a hydrated sodium tripolyphosphate product, comprising adding an organic compound selected from the group consisting of nitrilotriacetic acid, ethylenediamine tetraacetic amino tri(methylene phosphonic acid), 1-hydroxy ethylidene diposphonic acid, saturated polycarboxylic acids containing from 4 to 12 carbon atoms, the water soluble salts of said acids and mixtures thereof prior to adding the strong base; the weight ratio of said organic compound to said sodium trimetaphosphate being from about 1:1000 to about 2:1, respectively.

3,574,535

PROCESS FOR MANUFACTURING SODIUM TRIPOLYPHOSPHATE

Iuliu Molodovan and Marinela Man, Bucharest, Rumania, assignors to Ministerul Industriei Chimice, Bucharest, Rumania

No Drawing. Filed June 18, 1968, Ser. No. 737,821
Claims priority, application Rumania, June 20, 1967, 54,075

The portion of the term of the patent subsequent to Sept. 9, 1986, has been disclaimed
Int. Cl. C01b 25/30, 25/38

U.S. Cl. 23—107 1 Claim
The novel method of manufacturing sodium tripolyphosphate according to this invention comprises the counter-current extraction of wet process phosphoric acid with 28

to 32% P_2O_5 content with a polar organic solvent such as n-butanol, preventing thus the disadvantages related to the multistep purification used in the ordinary process. The organic phase, formed of n-butanol, phosphoric acid and water is neutralized, as such or after a more advanced purification to remove SO_4^{2-} ions with CaO or $CaCO_3$, at pH=7.2 to 7.5 and at a temperature of 60° to 70° C. in a single step with a Na_2CO_3 or NaOH solution, used as such or after saturation at 50° C., to obtain a molecular mixture $NaH_2PO_4:Na_2HPO_4$ of 1:2. The crystal suspension that is separated from butanol by centrifugation, is dried, homogenized by grinding, and calcined.

The quality of the product is comparable with that of sodium tripolyphosphate obtained from electrothermic phosphoric acid.

3,574,536

SODIUM ALUMINUM PHOSPHATE COMPOUNDS

Reginald E. Vanstrom, Dobbs Ferry, N.Y., assignor to Stauffer Chemical Company, New York, N.Y.

No Drawing. Filed June 26, 1968, Ser. No. 740,082
Int. Cl. C01b 25/30; A21d 2/00

U.S. Cl. 23—107 3 Claims
A crystalline sodium aluminum acid orthophosphate is provided by reacting an alkali metal compound with an inorganic aluminum compound and a dilute solution of phosphoric acid. The dilute solution of phosphoric acid will be between about 40% and 75% by weight. The proportion of each component is selected to provide a reaction product having a ratio of Na:Al:P of about 2:3:6.

3,574,537

PROCESS FOR THE SEPARATION OF USEFUL COMPOUNDS FROM WASTE OF THE ALUMINUM INDUSTRY

Jul-Hsiung Tsai, 10, Lane 101 Liao Ning St., Taipei, China

No Drawing. Filed Dec. 18, 1967, Ser. No. 691,166
Int. Cl. C01b 33/00, 33/16, 33/32

U.S. Cl. 23—110 1 Claim
Process for the treatment of red-mud to extract Fe_2O_3 , Al_2O_3 , SiO_2 and Na_2O , in which SO_2 is passed into a solution of red-mud and the Fe_2O_3 separated therefrom. The liquor is heated until a pH of 4.5 to 5.0 is reached forming a precipitate of SiO_2 and $Al(OH)SO_3$. The precipitate is separated from the liquor which is concentrated to crystallize out Na_2SO_3 . Sulphuric acid is added to the separated precipitate forming water-soluble aluminum salts. SiO_2 remains as a residue and is removed from solution. Water and a potassium or ammonium salt is added to the liquor from which the corresponding alum may be crystallized out. The precipitate of SiO_2 may be further treated to obtain silica gel or water glass.

3,574,538

PROCESS FOR PREPARING HIGH SILICA FAUJASITE

Carl Vance McDaniel, Laurel, Md., and Heyman Clarke Duecker, Marion, Ind., assignors to W. R. Grace & Co., New York, N.Y.

No Drawing. Filed Oct. 17, 1968, Ser. No. 768,508
Int. Cl. C01b 33/28

U.S. Cl. 23—112 5 Claims
A process for preparing faujasite having a silica-alumina ratio above about 4.5 by treating a mixture of clay, alkali metal hydroxide, alkali metal silicate, and nucleation centers (zeolite seeds) and heating to convert to the zeolite desired. The initial reactant mixture may be prepared to have a composition equal to or near that of the desired product.

3,574,539

METHOD OF MANUFACTURING CRYSTALLINE MORDENITE

Daniel Domine, Meudon, and Jean Quobex, Paris, France, assignors to L'Air Liquide, Societe Anonyme, pour l'Etude et l'Exploitation des Procédes Georges Claude

Continuation of application Ser. No. 564,146, July 11, 1966, which is a continuation-in-part of application Ser. No. 468,480, June 30, 1965. This application Sept. 27, 1968, Ser. No. 768,610

Claims priority, application France, July 21, 1964, 982,465, Patent 1,411,753; July 12, 1965, 22,354, Patent 88,553, 22,355, Patent 88,554
Int. Cl. C01b 33/28

U.S. Cl. 23—112 8 Claims
A process is disclosed for synthesizing crystalline mordenite by a hydrothermal treatment. A water dispersion of a powdery amorphous alkali metal silicoaluminate having a similar analysis to that of mordenite is treated under pressure for at least several hours at a temperature of at least 100° C. and at an initial pH between 11 and 13.3.

3,574,540

PROCESS FOR THE PRODUCTION OF BLANC FIXE

Arvel O. Franz and Fred F. Lester, Cartersville, Ga., assignors to Chemical Products Corporation, Cartersville, Ga.

No Drawing. Filed May 6, 1968, Ser. No. 727,077
Int. Cl. C01f 11/46

U.S. Cl. 23—122 15 Claims
A process for preparing blanc fixe from barium carbonate which contains sulfur impurities, comprising reacting barium carbonate with sulfuric acid, in an environment having a strong oxidation potential and in the presence of a minor amount of an acid which forms a soluble barium salt. Substantially all of the sulfur present in the barium carbonate as impurities should be either in the form of barium sulfate or in the form of compounds oxidizable by iodine at room temperature. Blanc fixe so produced is particularly suitable for use in coating photographic papers.

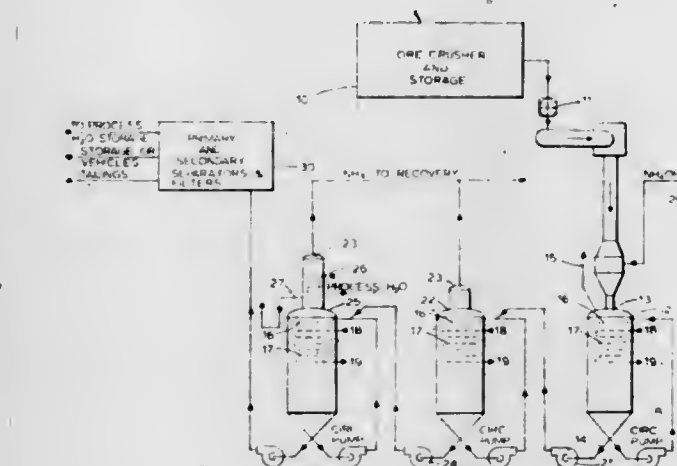
3,574,541

NONFERROUS METAL CONCENTRATION AND SEPARATION PROCESS

David O. Hines, 275 MacArthur Blvd., Oakland, Calif. 94610

Filed Jan. 27, 1969, Ser. No. 794,173
Int. Cl. C01g 3/02; C22b 3/00, 15/08

U.S. Cl. 23—147 3 Claims



This invention is a non-ferrous metal ore beneficiation process wherein non-ferrous metal bearing compounds are converted chemically to new compounds having a greater density than the original ones. The process frees other metals in combination with the non-ferrous

metal compounds during the concentration process. The change in density of the non-ferrous metal compounds and separation of the metallic elements in the ore facilitates the separation of the compounds and metallic elements by means of spiral separators or other similar devices. The beneficiation process comprises three stages: the ammoniation stage, the digestion stage and the conversion stage. The steps are carried out at atmospheric pressure, temperatures above 214° Fahrenheit are not required, and elemental copper is not precipitated when the process is used on copper bearing ores.

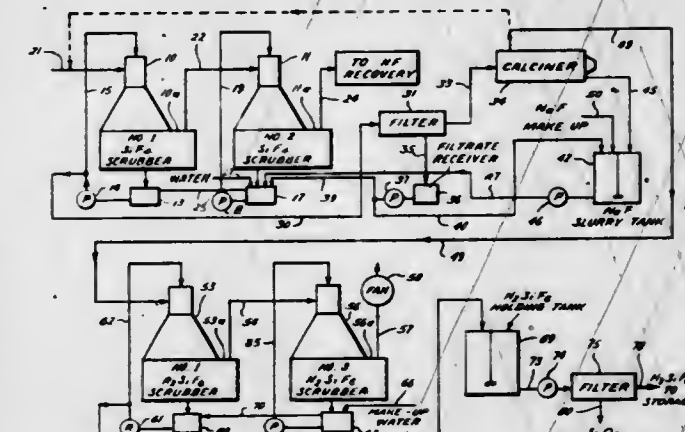
3,574,542

PROCESS FOR RECOVERY OF HF AND H_2SiF_6 FROM GASES CONTAINING HF AND SiF_4

Rufus G. Hartig, 230 Hillsboro Hotel, Dover, Fla. 33602

Filed Mar. 5, 1969, Ser. No. 804,519
Int. Cl. C01b 67/00, 7/22, 33/08

U.S. Cl. 23—153 2 Claims



Processes for recovery of HF and H_2SiF_6 from gas mixtures containing HF and SiF_4 , wherein SiF_4 is recovered as H_2SiF_6 , and HF is separately recovered.

3,574,543

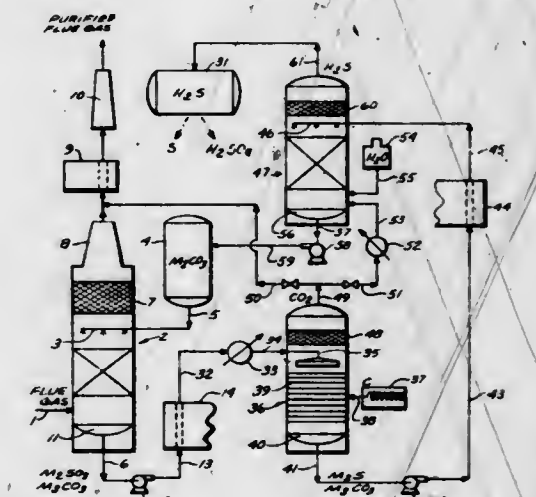
CARBONACEOUS PROCESS FOR RECOVERING SULFUR VALUES

Laszlo A. Heredy, Canoga Park, Calif., assignor to North American Rockwell Corporation

Original application May 15, 1967, Ser. No. 638,365, now Patent No. 3,438,727, dated Apr. 15, 1969. Divided and this application Nov. 26, 1968, Ser. No. 779,118

The portion of the term of the patent subsequent to Apr. 15, 1986, has been disclaimed
Int. Cl. C01b 17/16

U.S. Cl. 23—181 10 Claims



A method for recovering sulfur values from a molten salt mixture containing alkali metal sulfate or sulfite by either a one-stage or two-stage treatment of the molten

solution. For single-stage treatment, the alkali metal sulfate- or sulfite-containing molten solution is reacted with a hydrocarbonaceous composition, preferably carbon and hydrogen, to form hydrogen sulfide and alkali metal carbonates in the molten salt. For the two-stage treatment, the sulfate- or sulfite-containing molten solution is first treated with a carbonaceous material, preferably carbon, to form alkali metal sulfide, which is then treated with a gaseous mixture containing steam and carbon dioxide to form hydrogen sulfide and alkali metal carbonates in the molten salt.

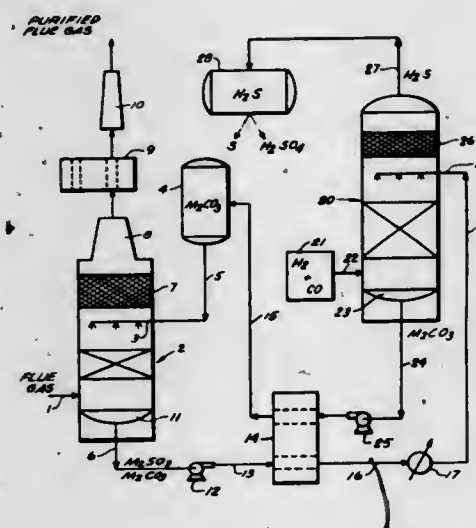
3,574,544

SINGLE-STAGE PROCESS FOR RECOVERING SULFUR VALUES

Laszlo A. Heredy, Canoga Park, and Donald E. McKenzie and Samuel J. Yosim, Woodland Hills, Calif., assignors to North American Rockwell Corporation
Original application May 15, 1967, Ser. No. 638,528, now Patent No. 3,438,722, dated Apr. 15, 1969. Divided and this application Nov. 26, 1968, Ser. No. 779,172
The portion of the term of the patent subsequent to Apr. 15, 1986, has been disclaimed
Int. Cl. C01b 17/16

U.S. Cl. 23-181

5 Claims



A method for recovering sulfur values from a molten salt mixture containing alkali metal sulfates or sulfites by reacting the alkali metal sulfate- or sulfite-containing molten solution in a single-stage treatment with a gaseous mixture containing hydrogen and either carbon monoxide or carbon dioxide to form hydrogen sulfide and alkali metal carbonates in the molten salt.

3,574,545

TWO-STAGE PROCESS FOR RECOVERING SULFUR VALUES

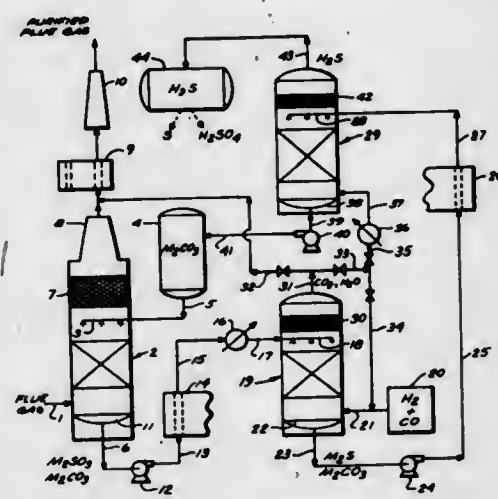
LeRoy F. Grantham, Calabasas, Calif., assignor to North American Rockwell Corporation
Original application May 15, 1967, Ser. No. 638,529, now Patent No. 3,438,728. Divided and this application Nov. 26, 1968, Ser. No. 779,176
The portion of the term of the patent subsequent to Apr. 15, 1986, has been disclaimed
Int. Cl. C01b 17/16

U.S. Cl. 23-181

13 Claims

A method for recovering sulfur values from a molten salt mixture containing alkali metal sulfate or sulfite by reduction of the alkali metal sulfate or sulfite by treatment with hydrogen, carbon monoxide, or a mixture thereof to form alkali metal sulfides in the molten salt mixture, and treatment of the molten salt mixture containing alkali metal sulfides with a gaseous mixture containing steam and carbon dioxide to form hydrogen sulfide and alkali metal carbonates in the molten salt.

The process may also be separately utilized for recovering sulfur values from a molten salt containing as reactive component alkali metal sulfides by treating the



molten salt mixture with a gaseous mixture containing carbon dioxide and steam to form hydrogen sulfide and alkali metal carbonates in the molten salt.

3,574,546

MANUFACTURE OF FINELY DIVIDED REFRACTORY OXIDES USING CONTROLLED AMOUNTS OF OXYGEN IN PLASMA JET REACTOR

Joseph Francis Skrivan, Stamford, Conn., assignor to American Cyanamid Company, Stamford, Conn.
No Drawing. Filed Aug. 17, 1965, Ser. No. 480,494
The portion of the term of the patent subsequent to Sept. 20, 1983, has been disclaimed
Int. Cl. C01g 1/02, 23/04

U.S. Cl. 23-202

8 Claims

This invention relates generally to an improved plasma jet process for making particulate oxides of refractory metals and metalloids. More particularly, it relates to an improvement in the high temperature plasma jet process for producing finely divided titanium oxide.

3,574,547

HIGH STRUCTURE, HIGH SURFACE AREA CARBON BLACK

Fletcher A. Hinson, Jr., Portland, Tex., assignor to Ashland Oil Inc., Houston, Tex.
Filed July 12, 1966, Ser. No. 564,667
Int. Cl. C09c 1/48

U.S. Cl. 23-209.2

4 Claims

A furnace carbon black process including the use of a preselected feedstock spray angle and injection of alkaline earth metal into the reactor, a carbon black product having the combined properties of unusual high surface area and high structure level, and the use of such carbon black in organic depolarized electrolytic cells are disclosed.

3,574,548

PROCESS FOR MANUFACTURING A CELLULAR CARBON BODY

Arthur F. Sands, Oak Ridge, and Michael E. Scrivner, Knoxville, Tenn., assignors to the United States of America as represented by the United States Atomic Energy Commission
No Drawing. Continuation-in-part of application Ser. No. 641,428, May 19, 1967. This application Aug. 11, 1969, Ser. No. 849,204
Int. Cl. C01b 31/02

U.S. Cl. 23-209.4

9 Claims

A rigid carbon foam is prepared by admixing furfuryl alcohol which has been partially polymerized so as to include less than about 12 percent free or unreacted furfuryl alcohol with a foaming agent such as a two-component polyurethane system for producing a cellular mass. This

mass is then cured and subsequently carbonized at a temperature of about 1000° C. to 2500° C. to provide a product of essentially pure carbon that is characterized by its cellular structure, dimensional stability in environments of changing humidity, a density in a range of about 0.02 to 0.80 gram per cubic centimeter, and a compressive strength which may be up to about 10,000 pounds per square inch. The density can be increased up to about 1.0 gram per cubic centimeter with the addition of about 15 to 20 weight percent graphite flour.

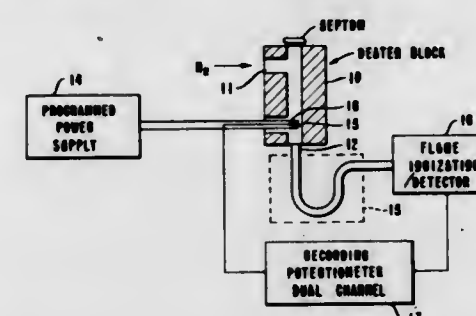
3,574,549

MICROANALYZER FOR THERMAL STUDIES

Frank T. Eggertsen, Orinda, Calif., assignor to Shell Oil Company, New York, N.Y.
Filed Feb. 20, 1967, Ser. No. 617,337
Int. Cl. G01n 25/20, 25/24

U.S. Cl. 23-230

9 Claims



A highly sensitive microanalyzer for determining the thermal stability, vapor pressure, volatile content of samples, and the hydrocarbon yield versus temperature pattern of oil shales and other organic-bearing samples. The instrument consists of a pyrolyzer combined directly with a sensitive detector operated at a high temperature.

3,574,550

MEANS OF IDENTIFYING CRUDE OIL AND OTHER MATERIALS

Kenneth A. Scott, Swarthmore, and Roger M. Bean, Glen Mills, Pa., assignors to Sun Oil Company, Philadelphia, Pa.
No Drawing. Filed Oct. 18, 1968, Ser. No. 768,916
Int. Cl. C10m 1/54; G01n 33/24; G21h 5/00

U.S. Cl. 23-230

4 Claims

A method of identifying petroleum compounds by adding thereto minute quantities of metallic phthalocyanines, complexes of asphaltene and metals, or mixtures of same and determining the presence of said added components by neutron activation.

3,574,551

METHOD FOR DETERMINING PHOSPHATE CONTENT OF LIQUIDS CONTAINING POLYPHOSPHATE COMPOUNDS

Charles A. Noll, Philadelphia, Pa., and Louis J. Stefanelli, Pennsauken, N.J., assignors to Betz Laboratories, Inc., Trevese, Pa.
No Drawing. Filed Dec. 9, 1968, Ser. No. 782,472
Int. Cl. G01b 25/26; G01n 33/18

U.S. Cl. 23-230

10 Claims

Test method for determining the phosphate content of liquids containing complex phosphates or polyphosphate compounds, comprising adding to a small sample of the liquid to be tested a first aqueous solution comprising a water soluble ferric salt, an alkali metal halide, an alkali metal salt of a lower fatty acid and a first lower fatty acid. The resulting solution is then allowed to mix and a second solution comprising a hydroxybenzoic acid and a second lower fatty acid is added thereto. The color intensity of the resulting solution is then measured and compared to a known standard.

3,574,552 COLORIMETRIC DOSIMETER FOR NITROGEN DIOXIDE

Robert F. Rakowski, Rochester, N.Y., assignor to the United States of America as represented by the Secretary of the Air Force
No Drawing. Filed Jan. 31, 1969, Ser. No. 795,673
Int. Cl. G01n 21/12, 21/20, 31/22

U.S. Cl. 23-232

3 Claims

Dosimeter strips for nitrogen dioxide are prepared by dipping a supporting material into an alcoholic solution of diphenylamine and oxalic acid trihydrate. When dry, the strips are used to estimate the concentration-time product of an exposure to nitrogen dioxide by comparing the color which develops on the strips with a set of color standards. Strips may be worn on the lapels of workers liable to exposure to toxic amounts of nitrogen dioxide.

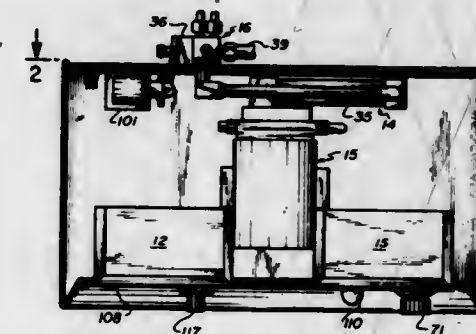
3,574,553

FLUID ANALYZER

Herbert Weltz, Scotch Plains, Roderic Spencer, Plainfield, and Fred Reh, Fanwood, N.J., assignors to Howard Precision Inc., Fanwood, N.J.
Filed Jan. 8, 1968, Ser. No. 696,215
Int. Cl. G01n 31/02, 21/26

U.S. Cl. 23-253

32 Claims



A fluid analyzer which periodically, automatically mixes a fluid sample with a test reagent, analyzes alterations in light transmission characteristics of the mixture produced thereby by means of a photo-sensitive, signal generating sensor which feeds and controls response means such as a make-up chemical feeder, an alarm or a recorder, and automatically cleanses the optical surfaces.

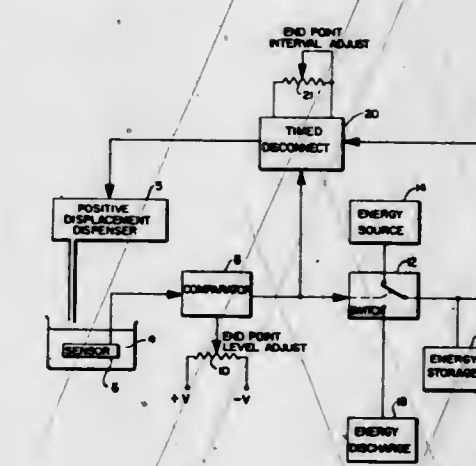
3,574,554

CONTROLLED RATE DISPENSER

Edward A. Berry, Arcadia, and Le Roy D. Barter, Fullerton, Calif., assignors to Beckman Instruments, Inc.
Filed June 2, 1969, Ser. No. 836,686
Int. Cl. G01n 31/18

U.S. Cl. 23-253

9 Claims



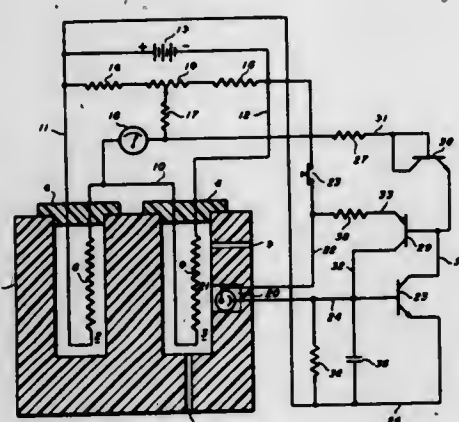
There is disclosed a dispensing apparatus having a controlled dispenser mechanism for adding a first substance

to a second substance thereby forming a mixture at a rate determined by a preset mixture end point adjustment. A mixture sensor is connected to a comparator to produce a comparator output signal when the sensor signal exceeds a preset mixture end point level. The comparator output signal is connected to activate a switching device whereby the dispenser mechanism is disconnected from an activating source of energy and connected to an energy discharge device. An energy storage device is attached to the dispenser mechanism and by the activated switch device is connected to the energy discharge device to provide a decaying source of energy to the dispenser mechanism thereby slowing the dispensing rate. In response to the sensor signal dropping below the mixture end point, the source of energy is again connected by the switch device to the dispenser mechanism. A timed disconnect is connected to the comparator output and in response to the sensor signal exceeding the mixture end point level for a preset end point interval disconnects the dispenser mechanism from the switch device to end the dispensing action until reset for the next cycle.

3,574,555

RADIATION SENSITIVE CIRCUIT FOR DETECTING COMBUSTIBLE GAS

Glenn H. Fertig, Pittsburgh, Pa., assignor to Mine Safety Appliances Company, Pittsburgh, Pa.
Filed Sept. 26, 1969, Ser. No. 861,359
Int. Cl. G01n 31/10; G02f 1/28
U.S. Cl. 23—254 8 Claims



A photoelectric cell is focused on the catalytic detector filament of a combustible gas indicator, in which a meter is operated by changes in the electrical resistance of the filament. A normally open auxiliary circuit also is connected with the meter for operating it independently of the filament. Whenever the filament glows, which causes the electrical resistance of the photoelectric cell to change, current flows through the cell to close the auxiliary circuit and maintain it closed.

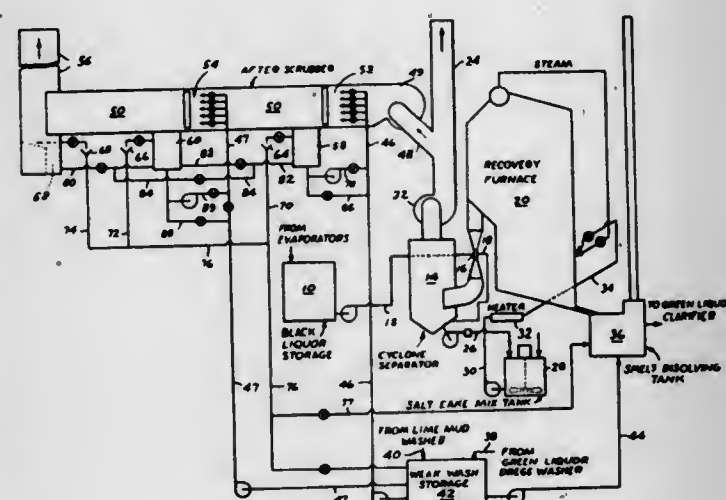
3,574,556

PROCESS AND APPARATUS FOR KRAFT PULP MILL CHEMICAL RECOVERY AND ODOR ABATEMENT

Winslow H. Buxton, Jr., Albany, Oreg., assignor to Western Kraft Corporation, Albany, Oreg.
Original application Apr. 19, 1965, Ser. No. 449,102, now Patent No. 3,431,165, dated Mar. 4, 1969. Divided and this application May 15, 1968, Ser. No. 739,961
Int. Cl. C10b
U.S. Cl. 23—262 8 Claims

Apparatus is incorporated in a kraft pulp mill for diverting the gases from the discharge stack of the re-

covery furnace to an afterscrubber in which the gases are sprayed with the alkaline weak wash liquor resulting from the washing of calcium carbonate mud and solid



covery furnace to an afterscrubber in which the gases are sprayed with the alkaline weak wash liquor resulting from the washing of calcium carbonate mud and solid

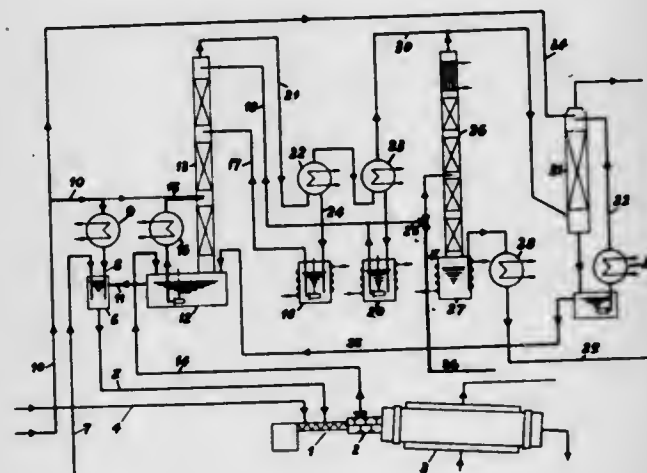
3,574,557

APPARATUS FOR THE CONTINUOUS PRODUCTION OF HYDROFLUORIC ACID

Renato Gentili, Muttens, Switzerland, assignor to Buss Aktiengesellschaft, Basel, Switzerland
Filed Feb. 26, 1968, Ser. No. 708,310
Claims priority, application Switzerland, Oct. 17, 1967, 14,581/67
Int. Cl. C01b 7/22 3 Claims

U.S. Cl. 23—263

3 Claims



Apparatus for the continuous production of hydrofluoric acid from fluorspar and sulphuric acid having means for mixing and kneading fluorspar with a hot premixture of hot washing acid returned from the hot gas scrubber, fresh pre-heated sulphuric acid and oleum, said kneading and mixing performed in a heated continuous kneader as first part of a three-stage reactor wherein the gas evolution-reaction commences in the first part and is to a major degree continued in a heated second part under agitation, the second part serving as degasifier for the reaction which is terminated in the final reactor where the mixture is heated to complete the conversion of anhydrite. The hot gases evolved in the first and third part of the reactor join the gases evolved in the second part of the reactor,

functioning also as a dust catcher. The hot gases then go to a scrubbing and stripping column where recycled washing acid absorbs heat and impurities. The gases are stripped at the same time of hydrogen fluoride. The still hot gases are then lead to a scrubbing section employing first impure hydrofluoric acid and then pure hydrofluoric acid which absorb further impurities. Pure hydrogen fluoride is stripped. The residual warm gases go to a fractional condensation stage where substantial amounts of hydrofluoric acid of industrial purity are collected and volatile impurities with some hydrogen fluoride are bled off for conventional absorption with sulphuric acid and recycling. The technically pure hydrogen fluoride can be easily purified further by distillation under pressure to yield hydrofluoric acid of maximum purity.

3,574,558

JET-MIXED LIQUID-LIQUID EXTRACTION COLUMN

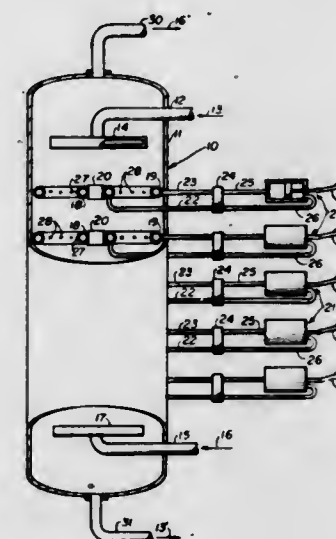
Theodore Vermeulen and Daniel R. Kahn, Berkeley, Calif., assignors to the United States of America as represented by the United States Atomic Energy Commission

Filed May 6, 1969, Ser. No. 822,212

Int. Cl. B01d 11/04; B01f 5/02

U.S. Cl. 23—270.5

7 Claims



A jet-mixed extraction column which incorporates the advantages of existing column-type extractors, while eliminating the need for internal moving parts. The column provides high rates of mass transfer, with only normal or even decreased extents of unwanted longitudinal dispersion compared to various prior column-type extractors. The column utilizes uniformly spaced, horizontal, tubular jetting and intake rings at the inner and outer boundaries of an annular cross-section. At each level, both rings are perforated so as to promote nearly straightline radial flow between the jetting and intake rings. Externally these rings are connected by way of a centrifugal circulating pump or a double-action reciprocating pump.

3,574,559

BRINE SYSTEM

Benjamin H. Kryzer and Edward J. Tischler, St. Paul, Minn., assignors to Ecodyne Corporation, Chicago, Ill.

Filed July 3, 1968, Ser. No. 742,348

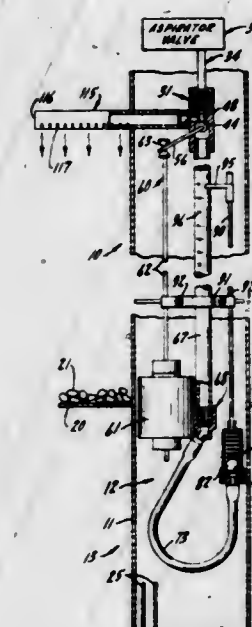
Int. Cl. B01f 1/00; C01d 3/04

U.S. Cl. 23—272

3 Claims

A brine valve and spray system, including a control valve arrangement which precisely measures a pre-selected

amount of brine draw and brine tank refill. A spray head associated with the valve arrangement distributes



refill water evenly over a salt bed to assure efficient brine formation.

3,574,560

DEVICE FOR PRODUCING GASEOUS REACTANTS PARTICULARLY HYDROGEN AND OXYGEN FOR FUEL CELLS

Ferdinand von Sturm and Hans Kohlmeier, Erlangen, Germany, assignors to Siemens Aktiengesellschaft, Berlin, Germany

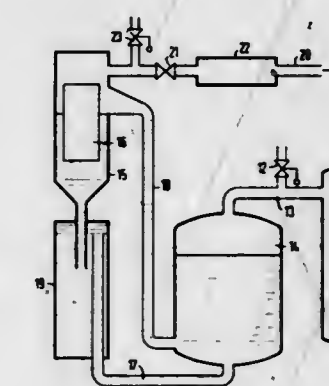
Filed Dec. 2, 1968, Ser. No. 780,426

Claims priority, application Germany, Dec. 2, 1967, P 16 67 277.8

Int. Cl. B01j 7/02

U.S. Cl. 23—282

4 Claims

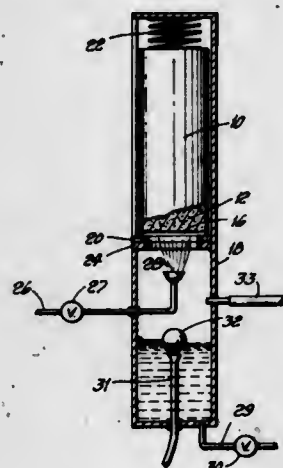


Method of producing gaseous reactants, particularly hydrogen and oxygen, for fuel cells by reaction or catalytic dissociation of liquid or liquid-dissolved substances, with solid substances or solid catalysts, whereby the development of gas is automatically adjusted to the gas consumed. The liquid substance or the liquid-dissolved substance is placed into a storage container which is connected with a sealed gas chamber and also connected, via at least one line, to a reaction tube containing the solid substance or the solid catalyst. Thus when the pressure drops in the reaction tube, the liquid located in the storage container is further compressed into the reaction tube and when the pressure in the reaction tube rises, the liquid is either completely or partially returned to the storage container.

3,574,561 OXYGEN GENERATOR SYSTEM UTILIZING ALKALI METAL PEROXIDES AND SUPER- OXIDES

Russell J. Nickerson, Mystic, Conn., and Thomas V. Bolles, Wellesley, Mass., assignors to the United States of America as represented by the Secretary of the Navy
Filed July 24, 1969, Ser. No. 844,527
Int. Cl. C01b 13/02; B01j 7/02
U.S. Cl. 23—282

4 Claims

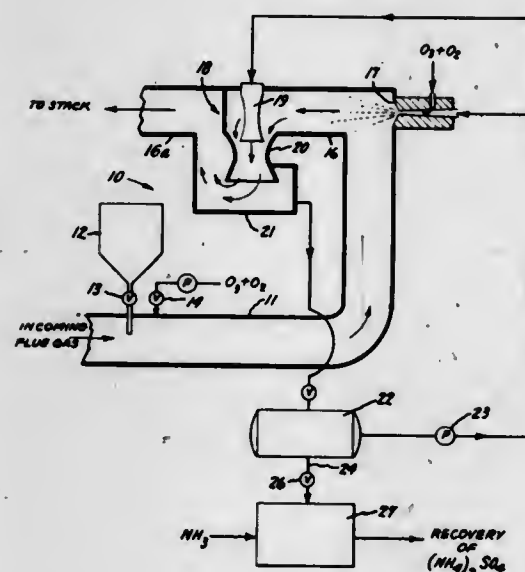


Oxygen is obtained by watering an alkali metal peroxide or superoxide, singly or as a mixture of materials, by spraying water upward onto the chemical contained in a downwardly directed elongated cartridge and providing for gravity escape of the sprayed water plus hydroxide product, thus affording control over the rate of reaction and by funneling the released oxygen to a delivery tube.

3,574,562 APPARATUS FOR REMOVAL OF SULFUR DIOXIDE FROM WASTE GASES

Masayuki Kawahata, Scotia, N.Y., assignor to General Electric Company
Filed Nov. 29, 1968, Ser. No. 779,807
Int. Cl. B01j 9/12, 9/16, 9/20
U.S. Cl. 23—284

4 Claims



Apparatus for removal of sulfur dioxide from waste gases is connected to the exhaust of a flue gas system, in which a chemical reaction promoted by ozone is brought about between oxygen and sulfur dioxide both in the presence of solid catalyst and in the presence of catalyst

in solution. Equipment at a series of stations may sequentially introduce into the hot gas flow (a) finely divided manganese dioxide, air (or oxygen) and ozone, (b) an ozone-entrained spray of an aqueous solution of manganese sulfate and (c) a jet of water or of the same aqueous solution to remove any manganese oxide powder or liquid particles entrained in the gas flow. The manganese sulfate solution is recovered and recirculated until it attains a concentration practical for sulfate recovery.

3,574,563 BERYLLIUM HYDRIDE COMPOUNDS

Frank C. Gunderloy, Jr., Woodland Hills, Louis R. Grant, Jr., Los Angeles, Ross I. Wagner, Woodland Hills, and Cliff Y. Fujikawa, Los Angeles, Calif., assignors to North American Rockwell Corporation
No Drawing. Filed May 12, 1965, Ser. No. 455,676
Int. Cl. C01b 6/24

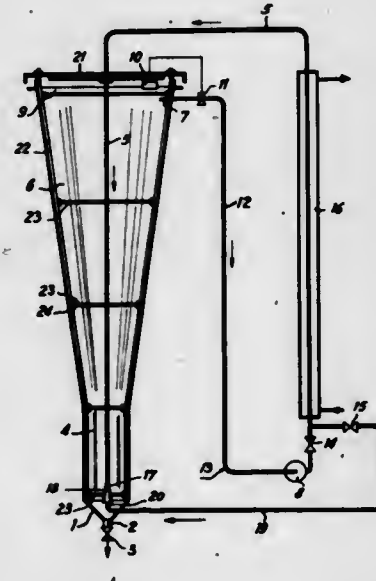
U.S. Cl. 23—361 4 Claims
1. The process of forming beryllium hydride compounds according to the reaction of $\text{Be}(\text{BH}_4)_2$ with $\text{AlRR}'\text{R}''$ wherein R, R' and R'' are selected from the class consisting of H and alkyl radicals of 1 to 8 carbon atoms and wherein at least one of said R's is an alkyl group.
4. $(\text{BeH}_2)_n(\text{BH}_3)_2$ wherein n varies from 3 to 100.

3,574,564 APPARATUS FOR THE CONTINUOUS PREPARATION OF CRYSTALLINE SUBSTANCES

Herve Olivier and Andre Vermot, Chalon-sur-Saone, France, assignors to L'Air Liquide, Societe Anonyme pour l'Etude et l'Exploitation des Procédés Georges Claude
Original application Jan. 19, 1967, Ser. No. 610,267. Divided and this application Nov. 13, 1969, Ser. No. 876,387
Claims priority, application France, Feb. 15, 1966, 49,644
Int. Cl. B01d 9/00

U.S. Cl. 23—273

5 Claims



Equipment for continuously precipitating crystalline substance of predetermined dimensional regularity, quality and quantity including a reactor having a portion increasing in diameter from bottom to top with a tube entering from the top and exiting into the reactor near the bottom thereof, the tube increasing in diameter near the lower part of the reactor, and a second tube entering near the bottom and extending upwardly along an axis which is in alignment with the first tube and exiting at a point below the end thereof, so that a main stream of mother liquor can be introduced through the first tube

in a downwardly direction and a secondary stream of mother liquor can be introduced through the second tube to yield a zone of substantially no speed at the lower end of the reactor.

3,574,565 COMPOSITE FILAMENT

Robert M. Paine, Cleveland, Ohio, assignor to The Brush Beryllium Company, Cleveland, Ohio
Filed Jan. 24, 1968, Ser. No. 701,042
Int. Cl. B32b 15/02
U.S. Cl. 29—194

1 Claim



A process for the continuous formation of composite filaments utilizing a continuous filament substrate and a metal capable of being deposited from the vapor state, wherein said filament is passed through a confined source of metal vapor, the deposit being built up in layers through succeeding passes, whereby composite filaments are produced, the process being carried out under vacuum.

3,574,566 NITROGEN- AND PHOSPHORUS-CONTAINING COMPOSITION SUITABLE FOR APPLICATION TO METAL SURFACES

Charles E. Dwors, Wickliffe, Ohio, assignor to The Lubrizol Corporation, Wickliffe, Ohio
No Drawing. Filed Apr. 18, 1968, Ser. No. 722,198
Int. Cl. G08g 17/10, 17/133
U.S. Cl. 29—195

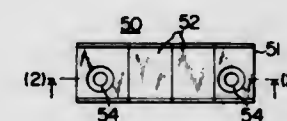
25 Claims

A composition of matter, suitable for application to metal surfaces, is prepared by the reaction of (A) the product of the reaction of a benzene polycarboxylic reactant, a polyhydric alcohol or phenol, and phosphoric acid, phosphorus or a mixture thereof, with (B) an aliphatic amine material having at least about 8 carbon atoms. The composition is especially useful as a component of siccative organic coating compositions.

3,574,567 WEAR RESISTANT MEMBERS

Yoshihiro Hatanaka and Hidetaka Mase, Himeji-shi, Japan, assignors to Kabushiki Kaisha Kokuei Kikai Seisakusho, Himeji-shi, Hyogo-ken, Japan
Filed June 11, 1968, Ser. No. 736,210
Claims priority, application Japan, June 26, 1967, 42/54,835; Nov. 27, 1967, 42/99,299
Int. Cl. B32b 15/04
U.S. Cl. 29—195

5 Claims



Wear resistant members, especially suitable for defining a coin passage of a coin counting and (or) sorting machine are made of supporting members and a wear re-

sistance surface made of ceramics or cermet and bonded to supporting members. The wear resistant surface is divided into a plurality of segments to prevent deformation or cracking.

3,574,568 INSULATED, ELECTRICAL ALUMINIUM CONDUCTOR

Hans-Olof Hansson, Sollentuna, Sweden, assignor to Telefonaktiebolaget L M Ericsson, Stockholm, Sweden
No Drawing. Filed Mar. 4, 1969, Ser. No. 804,311
Claims priority, application Sweden, Mar. 6, 1968, 2,938/68
Int. Cl. B32b 15/00
U.S. Cl. 29—195

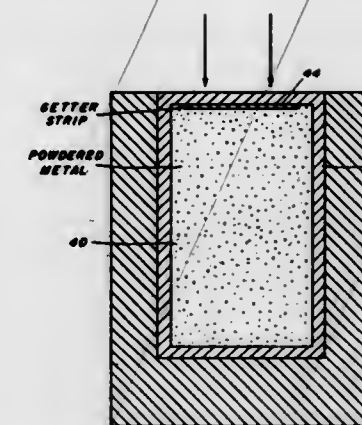
1 Claim

This invention pertains to an insulated electrical conductor of aluminium or aluminium alloy. The area of the conductor is covered with a layer of unalloyed tin with a thickness of $0.1\mu\text{--}0.5\mu$ and a layer applied outside said layer consisting of a tin lead alloy with a thickness of $0.1\mu\text{--}4.0\mu$ containing between 10% and 80% tin and the remainder lead.

3,574,569 METAL ARTICLES

Milton B. Vordahl, Henderson, Nev., assignor to Crucible Inc.
Application Mar. 16, 1967, Ser. No. 638,164, now Patent No. 3,466,734, dated Sept. 16, 1969, which is a continuation-in-part of application Ser. No. 582,640, Sept. 28, 1966. Divided and this application Feb. 28, 1969, Ser. No. 823,222
Int. Cl. B23p 3/14, 3/22; C22c 15/00
U.S. Cl. 29—196

6 Claims



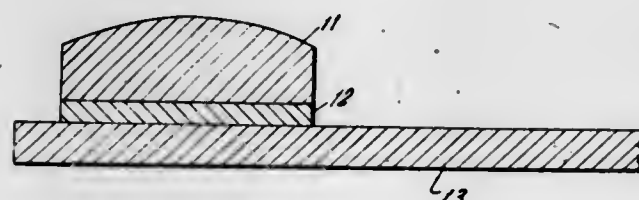
This application pertains to new and improved metal composite assemblies for pack rolling into composite articles and new and improved powdered-metal compacted articles and to methods for producing articles of these types, and, more particularly, to new and improved methods for producing and maintaining clean metal surfaces and improving bonding during manufacture of the articles.

For this purpose the present invention provides as a getter a beta alloy of titanium characterized by a beta micro-structure having substantial thermal stability throughout all heating and deforming operations performed upon the metal assembly with which the getter is used. The alloy is substantially free of other alloying elements that are productive of eutectic compositions with iron having melting points below the maximum temperatures used in the heating of the metal assembly. Specifically, a preferred getter in accordance with the invention is an alloy consisting essentially of about 13% by weight of vanadium, 11% by weight of chromium, 3% by weight of aluminum, and the balance substantially titanium.

3,574,570
COMPOSITE CONTACT STRUCTURE FOR CONNECTION TO AN ALUMINUM SUPPORT
 Childress B. Gwyn, Jr., Wethersfield, Conn., assignor to Talon, Inc., Meadville, Pa.
 Filed Apr. 29, 1968, Ser. No. 724,779
 Int. Cl. B32b 15/00

U.S. Cl. 29—197.5

3 Claims

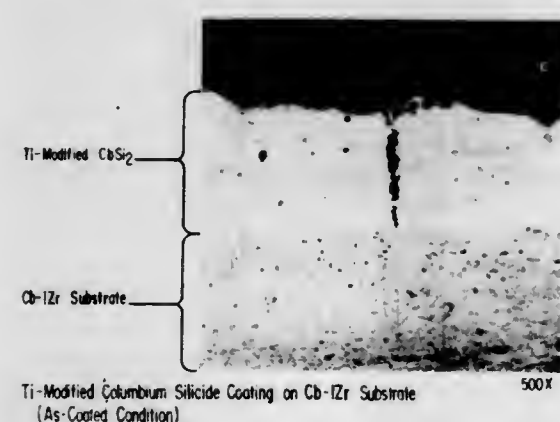


A composite contact structure for connection to an aluminum support where the contact structure has a working face material which is bonded on its rear surface to an aluminum or aluminum-silver alloy body material suitable for connection to an aluminum support by conventional techniques such as brazing, welding, staking, and the like.

3,574,571
COATINGS FOR HIGH-TEMPERATURE ALLOYS
 Leonard A. Friedrich, West Hartford, and Emanuel C. Hrakis, Mansfield Center, Conn., assignors to United Aircraft Corporation, East Hartford, Conn.
 Filed Apr. 14, 1964, Ser. No. 360,176
 Int. Cl. B32p 3/00

U.S. Cl. 29—198

16 Claims



Columbium and its alloys are provided with titanium-modified columbium silicide coatings which protect the metal from oxidation of high temperatures. The coating is formed by codeposition of titanium and silicon in a pack-cementation process. During exposure to oxidation at high temperature an oxide coat is formed on the outer zone.

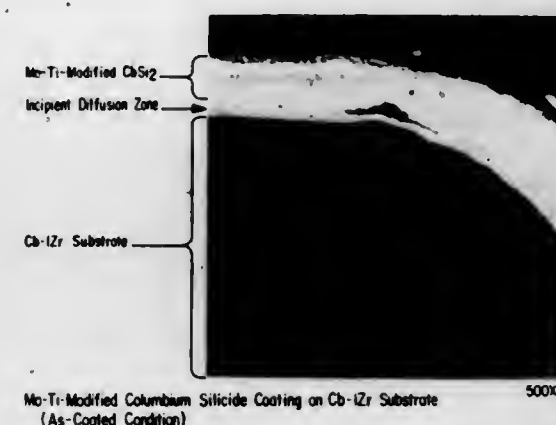
3,574,572
COATINGS FOR HIGH-TEMPERATURE ALLOYS
 Leonard A. Friedrich, West Hartford, and Emanuel C. Hrakis, Mansfield Center, Conn., assignors to United Aircraft Corporation, East Hartford, Conn.
 Filed Apr. 14, 1964, Ser. No. 360,177
 Int. Cl. B23p 3/00

U.S. Cl. 29—198

17 Claims

1. An article of manufacture which comprises a core of metal selected from the group consisting of columbium and columbium base alloys, the article having a defect, spalling and thermal and mechanical shock failure resistant surface zone that is oxidation resistant at high

temperatures, the surface zone consisting essentially of columbium silicides modified by titanium and molybde-

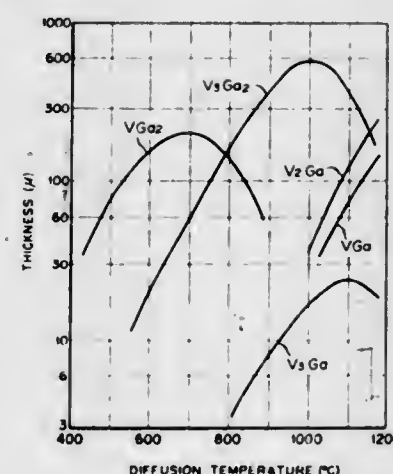


num and characterized by measurable ductility at use temperatures in excess of 1500° F.

3,574,573
COMPOSITE SUPERCONDUCTOR WITH LAYERS OF VANADIUM MATERIAL AND GALLIUM MATERIAL
 Kyoji Tachikawa, Yoshiaki Tanaka, and Satoshi Fukuda, Tokyo, Japan, assignors to Director of National Research Institute for Metals, Tokyo, Japan
 Filed June 19, 1967, Ser. No. 646,820
 Claims priority, application Japan, June 25, 1966, 41/41,040
 Int. Cl. B32b 15/00

U.S. Cl. 29—198

6 Claims



A superconductor consisting of a vanadium substrate of wire or tape form and an overlying layer of superconductive V₃Ga intermetallic compound. A method for manufacturing such superconductor, comprising the steps of forming a layer of intermediate compounds richer in gallium on the surface of a vanadium substrate having said form through a reaction between the vanadium substrate and the surrounding molten gallium at a temperature between 500° C. and 800° C., and of converting said phase to V₃Ga at a temperature between 600° C. and 850° C. An apparatus best suited for practicing said method in the manufacture of such superconductor.

3,574,574
MOTOR FUEL COMPOSITION
 Fred W. Moore, Fishkill, and Herbert E. Vermillion, Wappingers Falls, N.Y., assignors to Texaco Inc., New York, N.Y.
 No Drawing. Filed June 12, 1968, Ser. No. 738,376
 Int. Cl. C10I 1/18

U.S. Cl. 44—66

16 Claims

A motor fuel composition which promotes reduced intake valve and port deposits containing from 0.005 to 0.1 volume percent of a polyester of a polymerized carboxylic acid.

3,574,575
LIQUID HYDROCARBON OIL COMPOSITIONS CONTAINING ESTERS OF STYRENE-MALEIC ANHYDRIDE COPOLYMERS AS FLUIDITY IMPROVERS
 Paul Y. C. Gee, Woodbury, and Harry J. Andress, Jr., Pitman, N.J., assignors to Mobil Oil Corporation
 No Drawing. Continuation-in-part of application Ser. No. 672,469, Oct. 3, 1967. This application Apr. 21, 1969, Ser. No. 818,127

Int. Cl. C10I 1/18

U.S. Cl. 44—62

4 Claims

Liquid hydrocarbon oil compositions are provided which contain small amounts, sufficient to improve their fluidity characteristics, of esters of styrene-maleic anhydride copolymers having at least 20 carbon atoms in the alkyl portion. A method for preparing these esters is also provided.

3,574,576
DISTILLATE FUEL COMPOSITIONS HAVING A HYDROCARBON SUBSTITUTED ALKYLENE POLYAMINE

Lewis R. Honnen and Robert Gordon Anderson, Novato, Calif., assignors to Chevron Research Company, San Francisco, Calif.

No Drawing. Continuation-in-part of abandoned application Ser. No. 408,686, Nov. 3, 1964. This application Sept. 20, 1965, Ser. No. 488,775

The portion of the term of the patent subsequent to Apr. 15, 1966, has been disclaimed

Int. Cl. C10I 1/22

U.S. Cl. 44—72

9 Claims

Fuel compositions having polypropylene or polyisobutylene substituted polyamines as detergents or dispersants.

3,574,577
METHOD OF PREVENTING ICE FORMATION IN A JET ENGINE

Jerzy J. Bialy, Lagrangeville, and George W. Eckert, Wappingers Falls, N.Y., assignors to Texaco Inc., New York, N.Y.

No Drawing. Continuation-in-part of application Ser. No. 394,038, Sept. 2, 1964. This application May 22, 1968, Ser. No. 731,331

Int. Cl. C10I 1/22

U.S. Cl. 44—72

4 Claims

Method of operating a jet engine on a hydrocarbon type jet fuel containing a polyethoxylated propylene diamine to prevent formation of ice crystals in the fuel system.

3,574,578
STEAM HYDROCARBON REFORMING PROCESS
 William F. Franz, Gardiner, and Howard V. Hess, Glenham, N.Y., assignors to Texaco Inc., New York, N.Y.
 Filed Dec. 28, 1967, Ser. No. 694,184

Int. Cl. C01b 2/14

U.S. Cl. 48—214

9 Claims

A low temperature method for the steam reforming of hydrocarbons using a zeolite containing catalyst to produce a gas containing hydrogen and carbon dioxide and substantially free from carbon monoxide.

3,574,579
BRONZE-IRON METAL-BONDED DIAMOND ABRASIVE ARTICLES CONTAINING BORON NITRIDE PARTICLES

Howard S. Clarke, Deane, Bolton, England, assignor to The Carborundum Company, Niagara Falls, N.Y.

No Drawing. Filed May 5, 1969, Ser. No. 822,027
 Claims priority, application Great Britain, May 24, 1968, 24,888/68

Int. Cl. B24d 3/02; C04b 31/16

U.S. Cl. 51—307

6 Claims

Metal-bonded diamond grinding wheels are improved by the inclusion of from about 15% to about 60% by

volume of granular boron nitride, having a particle size ranging from about 63 to about 1000 microns, in the abrasive section of the wheel. The inclusion of the boron nitride reduces the temperature generated when the wheel is used without a liquid coolant, and improves the grinding ratio (weight of material removed per weight of wheel worn). The invention makes possible the general use of metal-bonded diamond abrasive wheels under dry grinding conditions, i.e., without a liquid coolant.

3,574,580
PROCESS FOR PRODUCING SINTERED DIAMOND COMPACT AND PRODUCTS

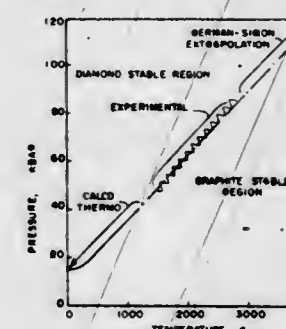
Harold D. Stromberg, Oakland, and Douglas R. Stephens, Castro Valley, Calif., assignors to the United States of America as represented by the United States Atomic Energy Commission

Filed Nov. 8, 1968, Ser. No. 774,274

Int. Cl. B24d 3/02

U.S. Cl. 51—307

7 Claims



Process including preliminary cleansing and essential preconditioning treatment of finely divided diamond particles followed by compaction of the preconditioned particles at high temperatures and pressures in the diamond stable region to produce dense self-bonded sintered diamond compact. Incorporation of boron, silicon or beryllium as sintering aid agents with the preconditioned particles still further promotes sintering and bonding of the compact.

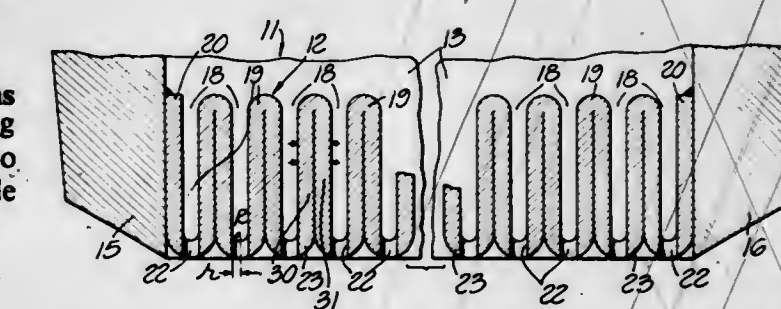
3,574,581
BUSHING FOR USE IN EXTRUDING FIBERS
 Edward T. Strickland and Homer C. Amos, Palm Springs, Calif., assignors to PPG Industries, Inc., Pittsburgh, Pa.

Filed Sept. 13, 1968, Ser. No. 759,736

Int. Cl. C03b 37/02

U.S. Cl. 65—1

16 Claims



A bushing for use in extruding fibers under pressure from high temperature meltable material, such as molten glass. The bushing includes a plurality of tiny and closely spaced orifices through which the material is extruded. There are described herein various geometrical configurations for bushings which permit the use of a thin wall at the orifice area which can be subjected to high internal pressure with relatively low stress on the wall. The wall of the bushing at the orifice area preferably has a thickness less than several times the diameter of an orifice. One configuration is in the form of a folded or pleated

ribbon of thin metal, the ribbon providing one or more apexes each having one or more orifices through which the material is extruded. Another configuration provides a circular wall in the form of a section of a toroid at the orifice area, and another provides plural dimple-like orifice areas substantially in the form of sections of spheres. For glass fiber extrusion, the bushing typically is made from a thin sheet of high temperature resistant material, such as platinum, platinum alloys, or other suitable metals or alloys.

3,574,582

METHOD FOR MAKING FIBER OPTICAL IMAGE-CONDUCTING DEVICES EMBODYING STRAY LIGHT-ABSORBING MEANS

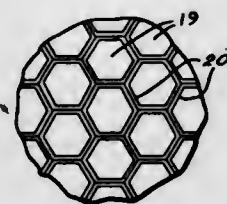
Walter P. Slegmund, Woodstock, Conn., and Noble S. Williams, Sturbridge, Mass., assignors to American Optical Corporation, Southbridge, Mass.

Original application May 17, 1965, Ser. No. 456,249, now Patent No. 3,436,142, dated Apr. 1, 1969. Divided and this application Oct. 4, 1968, Ser. No. 765,234

Int. Cl. C03b 37/00, 11/08, 19/00

U.S. Cl. 65—4

2 Claims



Method of making fiber optical image-conducting devices each of different thicknesses in different parts considered in the longitudinal direction thereof, and including thin elongated light-absorbing means dispersed and uniformly spaced throughout the cross-sectional area of the fiber optical device and extending longitudinally from end-to-end thereof, said method being such as to form absorbing means of such varying controlled stray light characteristics as to provide uniform transmission of optical energy through all parts of the image-conducting device formed thereby.

3,574,583

PROCESS FOR PREPARING FOAM GLASS INSULATION

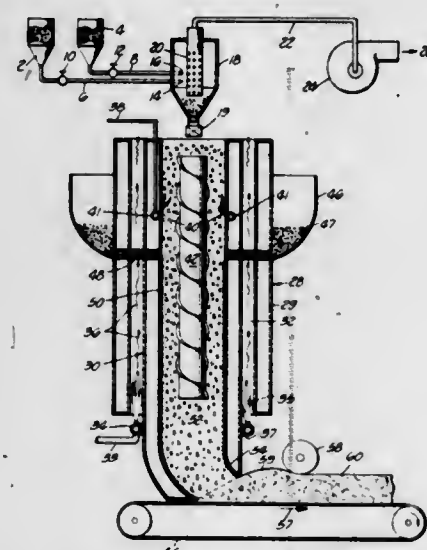
Aaron Goldsmith, Sepulveda, Calif., assignor to Lockheed Aircraft Corporation, Burbank, Calif.

Filed Jan. 29, 1968, Ser. No. 701,203

Int. Cl. C03b 19/08

U.S. Cl. 65—22

14 Claims



A process for preparing foamed glass comprising heating under pressure a glass or glasses in admixture with a vaporizable metal or a vaporizable salt, said heating being

conducted to a temperature at which the mixture of glass and metal or glass and salt has a viscosity of about 10^3 to 10^5 poises and the metal or salt exerts a vapor pressure of about 5 to about 50 p.s.i. in excess of atmospheric pressure, releasing the pressure on the glass mixture such that the metal or salt vaporizes to form a foamed glass, and cooling the foamed glass. Preferably, the heating is carried out in a vertical furnace with the pressure supplied by the weight of the glass mixture contained in the furnace, the raw materials being charged to the top of the furnace and the molten mixture of glass and metal or glass and salt being withdrawn at the bottom of the furnace. If a salt is employed, it is one which is relatively unreactive with the glass and is at least partially soluble in the glass to lower its viscosity at the heating temperature employed in the process.

3,574,584

METHOD OF FABRICATING GLASS COATED METAL SUBSTRATES

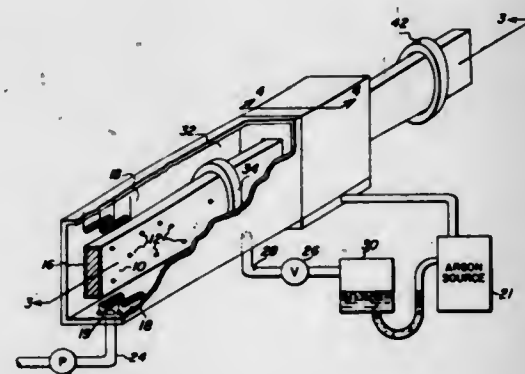
Roland T. Girard, Scotia, and Matthew J. Curran, Schenectady, N.Y., assignors to General Electric Company

Filed May 15, 1969, Ser. No. 824,948

Int. Cl. C03c 29/00, 7/00

U.S. Cl. 65—59

12 Claims



Pinhole free, glass coated iron substrates suitable for utilization as radio chassis are formed by heating the iron substrate above 500°C . in a controlled atmosphere to limit oxidation of the iron substrate surface to less than approximately 30,000 Å., immersing the surface oxidized substrate in a fluidized bed of glass particles, e.g. vitreous enamel frit ground to a narrow particle size range, to fuse the particles to the substrate surface and subsequently firing the coated substrate outside the fluidized bed at a temperature above 500°C . to mature the glass coating. Desirably the final firing employs heat generated within the substrate, e.g. by induction or resistance heating of the substrate, to bake the glass outwardly from the substrate-glass interface thereby maximizing the density of the glass coating.

3,574,585

ELECTRIC GLASS MELTING FURNACE AND METHOD OF MELTING GLASS

Leon F. Robertson and James W. Thomas, Brockport, Pa., assignors to Brockway Glass Company, Inc., Brockway, Pa.

Filed Aug. 19, 1968, Ser. No. 753,360

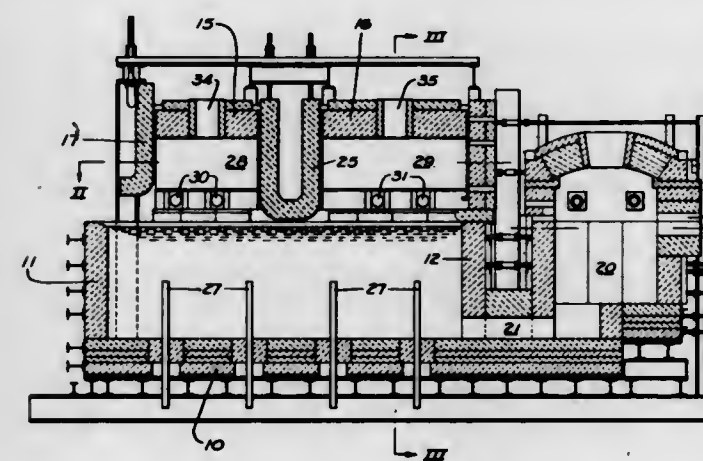
Int. Cl. C03b 5/02

U.S. Cl. 65—135

10 Claims

A continuous tank furnace having a batch feeding and an opposite glass discharge end with submerged electrodes for supplying heat to melt the batch constituents. The space above the level of the melt in the tank is divided into at least two successive zones by a hanging transverse refractory wall which extends downwardly close to the

surface of the melt. Independently controlled auxiliary heaters above the surfaces of the melt in the two zones provide means for controlling the existence of and the density or thickness of the batch cover on the glass melt. This maintains a substantial batch cover in the first zone to



retain heat within the melt while auxiliary heat above the melt in the second zone minimizes the blanketing or insulating effect of the batch cover and thus promotes liberation of gases which would otherwise form undesirable seeds and/or blisters in the molten glass.

3,574,586

GLASS SEALING APPARATUS

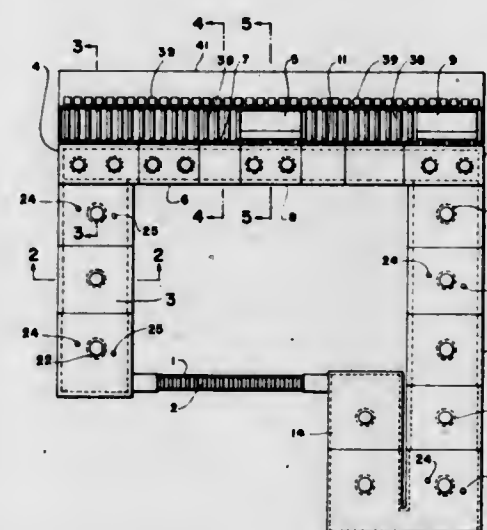
Edward Ernest Johnson, North Wales, Pa., assignor to Selas Corporation of America, Dresher, Pa.

Filed Dec. 18, 1968, Ser. No. 784,562

Int. Cl. C03b 23/20

U.S. Cl. 65—152

5 Claims



The present invention is directed to apparatus for sealing the edges of all glass glazing units. Pairs of glass sheets are carried in sequence and automatically through a preheat tunnel, a sealing tunnel, an annealing tunnel, and a cooling tunnel.

3,574,587

GLASS FORMING MACHINE

Cyril Grundy, St. Helens, and John Bradley Stow, Ormskirk, England, assignors to Ravenhead Glass Limited, St. Helens, England

Filed Nov. 12, 1968, Ser. No. 775,020

Claims priority, application Great Britain, Nov. 15, 1967, 52,001/67

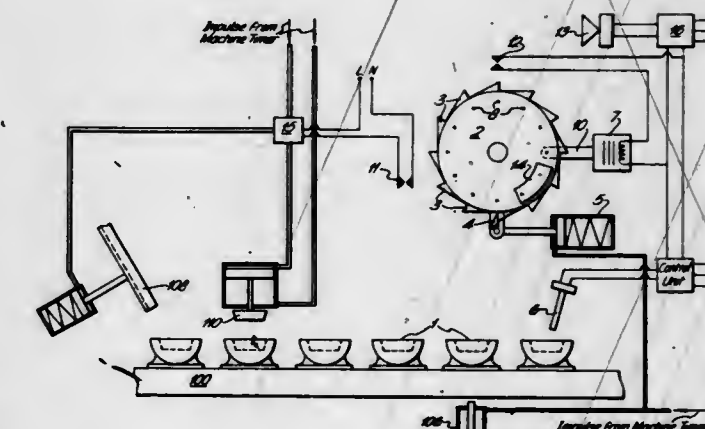
Int. Cl. G08b 21/00; C03b 9/00, 11/02

U.S. Cl. 65—158

10 Claims

A machine for forming hollow glass articles which comprises a rotating turret carrying a plurality of molds, a charging chute for filling the molds with molten glass,

a plunger or blowpipe for forming the charge into a shape, and a push rod for ejecting the formed glass from the molds. A control unit is indexable intermittently into a plurality of positions equal to the number of molds. The unit comprises a plurality of pins which are mounted in a ratchet wheel. Each pin corresponds to a specific mold and is moved into operative position by contact with a



lever attached to a solenoid. The solenoid is coupled to an infrared detector head which is situated between the removal station and charging station, and which determines the presence of a filled mold and passes a signal to the solenoid, which through the lever actuates the pin. The pin in its operative position then contacts a switch which causes either the mold charger or article former not to operate in conjunction with the filled mold.

3,574,588

ASSEMBLY FOR CONVEYING GLASS SHEETS THROUGH A HEAT TREATING FURNACE

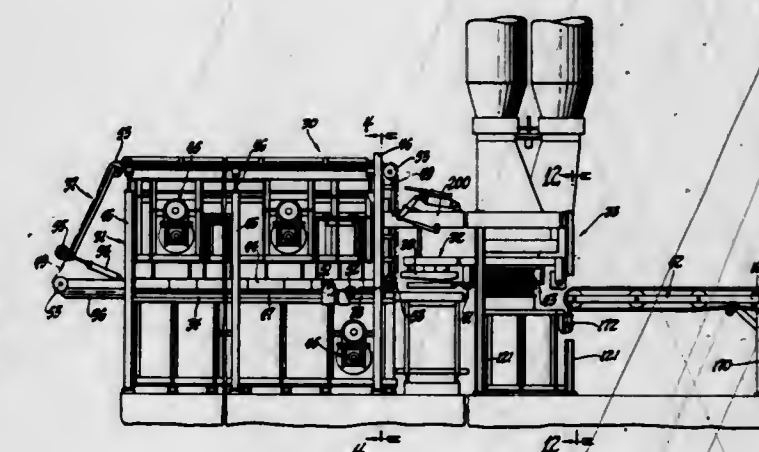
Norman C. Nitschke, Perrysburg, Ohio, assignor to Permaglass, Inc., Millbury, Ohio

Filed Dec. 22, 1967, Ser. No. 692,807

Int. Cl. C03b 25/00

U.S. Cl. 65—182

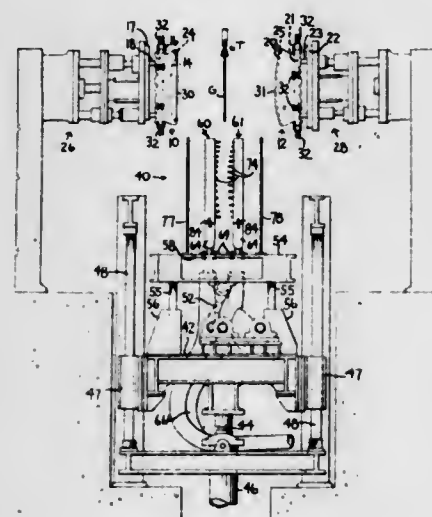
10 Claims



A conveying assembly especially adapted for moving a sheet of glass over an elongated gas support bed in a furnace as the sheet of glass is heated. The furnace has a pair of elongated openings along each side thereof which are coextensive with the gas support bed. The conveying means includes a plurality of pusher bars spaced from one another and extending across the bed with their ends extending through the openings and exteriorly of the furnace. There is an endless loop chain disposed exteriorly of and along each side of the furnace. The chains

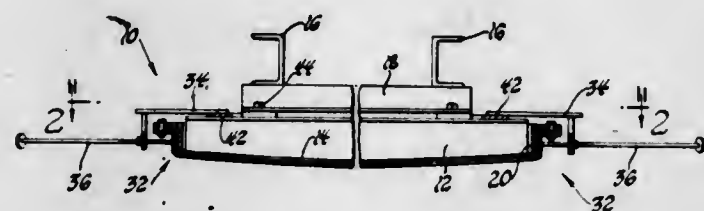
are operatively connected to opposite ends of the pusher bars for moving the latter along the bed. The chains are therefore in the cooler environment exteriorly of the furnace.

3,574,589
BENDING AND TEMPERING GLASS SHEETS
George E. Yockey, Crestline, Ohio, assignor to PPG Industries, Inc.
Filed Aug. 24, 1966, Ser. No. 574,636
Int. Cl. C03b 23/00
U.S. Cl. 65—268 6 Claims



Apparatus for bending and tempering glass sheets comprising a pair of relatively massive glass shaping members having complementary shaping surfaces movable between a glass engaging position and a retracted position, a pair of relatively light glass quenching means movable between a retracted position offset from said glass shaping members and a glass quenching position intermediate said glass shaping members when the latter are retracted. The lightness of the quenching means facilitates its movement and, if desired, its reciprocation, while applying chilling fluid against the surfaces of a newly press bent glass sheet.

3,574,590
GLASS BENDING MOLD ASSEMBLY
Bill W. Tank, Martin, Ohio, assignor to Pernaglass, Inc.
Filed Apr. 10, 1968, Ser. No. 720,028
Int. Cl. C03b 23/02
U.S. Cl. 65—287 3 Claims



A glass treating assembly of the type including means for heating a sheet of glass, a press mold having a glass pressing surface for curving the sheet. The improvement comprises a frame with insulating material attached to the frame and an attachment means removably supporting the frame adjacent the mold so that the insulating material covers the pressing surface of the mold with the attachment means being operable for allowing the frame to be removed from the mold, whereby the insulat-

ing material may be replaced when the frame is at a position remote from the heat of the assembly. Another feature is the utilization of a plurality of layers of fiber-glass cloth as the insulating material.

3,574,591
METHODS FOR PREPARING MIXED CATION POLYPHOSPHATES
John W. Lyons, St. Louis, and George A. Raub, Jr., and Howard L. Vandersall, Ballwin, Mo., assignors to Monsanto Company
No Drawing. Filed May 15, 1968, Ser. No. 729,385
Int. Cl. C05b 1/00

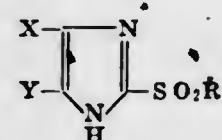
U.S. Cl. 71—1 9 Claims
A process for producing slowly soluble ammonium-potassium-multivalent metal cation polyphosphates, useful as slow release fertilizers is disclosed which process comprises thermally condensing (1) an inorganic phosphate-containing material (2) a potassium-containing material and (3) a multivalent metal source, in the presence of a combined ammoniating and condensing agent, under controlled temperature conditions to thereby produce the mixed cation polyphosphates containing specified ratios of the nitrogen and potassium and specified quantities of multivalent cations.

3,574,592
PROCESS FOR PREPARING MICRONUTRIENTS AND PRODUCTS PRODUCED THEREBY
Harold A. Hartung, West Collingswood, N.J., assignor to MacAndrews & Forbes Company, Camden, N.J.
No Drawing. Filed June 20, 1969, Ser. No. 835,254
Int. Cl. C05f 11/00

U.S. Cl. 71—1 36 Claims
Trace metal micronutrients, in the form of a soluble complex of the trace metal in the acid soluble portion of an aqueous alkaline licorice root extract, are produced by reacting the aqueous alkaline extract of licorice root with either (a) an acidic trace metal compound or (b) a mineral acid followed by reaction of the resulting acid soluble material with an alkaline or neutral compound of a trace metal, to form the soluble trace metal-licorice root extract complex.

3,574,593
HERBICIDAL METHOD USING SUBSTITUTED ALKYL SULFONYLMIDAZOLES
Albert William Lutz, Montgomery Township, Somerset County, N.J., assignor to American Cyanamid Company, Stamford, Conn.
No Drawing. Original application July 21, 1967, Ser. No. 654,968, now Patent No. 3,499,001, dated Mar. 3, 1970. Divided and this application Sept. 24, 1969, Ser. No. 870,910
Int. Cl. A01n 9/22

U.S. Cl. 71—92 5 Claims
Substituted alkylsulfonylmidazole compounds of the formula:



wherein R is a member selected from the group consisting of lower alkyl, alkenyl and aralkyl and X and Y are hydrogen, nitro, or halogen, at least one of X and Y being halogen. The compounds where one of X and Y is hydrogen or nitro are formed from the corresponding 2-alkylthioimidazole intermediates by oxidation of the intermediates with m-chloroperbenzoic acid or monoperphthalic acid, followed by halogenation. The compounds are highly active pre-emergence and post-emergence herbicides.

3,574,594
PHENYLACETONITRILES AS PRE-EMERGENCE HERBICIDES
Stanley T. D. Gough, Raritan, and Roger P. Napier, Piscataway, N.J., assignors to Mobil Oil Corporation
No Drawing. Filed Apr. 29, 1968, Ser. No. 725,173
Int. Cl. A01n 9/20; C07c 121/68
U.S. Cl. 71—105 3 Claims
Phenylacetone nitriles having trifluoromethyl or cyano ring substituents are effective in pre-emergence control of undesirable grasses.

3,574,595
METHOD FOR PRODUCING PREREDUCED IRON ORE PELLETS
Morris M. Fine and Robert B. Schluter, Minneapolis, Minn., assignors to the United States of America as represented by the Secretary of the Interior
Filed Jan. 6, 1969, Ser. No. 789,222
Int. Cl. C21b 1/10

U.S. Cl. 75—5 10 Claims
Green pellets composed of (1) finely ground iron ore or concentrate and (2) a binder such as bentonite clay are heated to a temperature of about 1740° F.—2100° F., preferably 1830° F., under strongly reducing conditions, in the presence of a reductant and sulfur, so that the pellets are partially reduced and sulfurized to the extent that they contain at least about 0.08 weight percent sulfur. Substantial sintering of metallic iron in the pellets thereby occurs. Subsequently, these hot prerduced pellets can be desulfurized with CaCO₃.

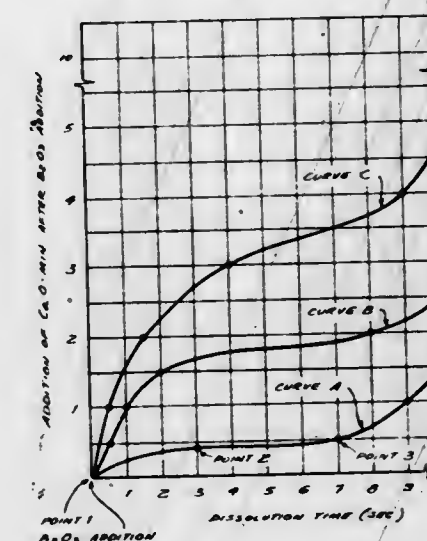
3,574,596
METHOD FOR PRODUCING STAINLESS STEEL
Gordon R. Lohman, Glen Ellyn, and Richard Kurt Matuschkovitz, Chicago, Ill., assignors to Amsted Industries Incorporated, Chicago, Ill.
Filed Sept. 15, 1967, Ser. No. 667,978
Int. Cl. C21c 7/00

U.S. Cl. 75—49 4 Claims
In the production of stainless steels involving additions of titanium, columbium or tantalum, the slag is removed from the molten steel before tapping into the ladle. The melt is subjected to vacuum and agitated by the introduction of an inert gas through a porous plug near the bottom of the ladle. During such treatment, the titanium, columbium or tantalum is added under vacuum and mixed with the melt by the inert gas agitation. Following treatment, the melt is pressure poured into a mold by disposing a pouring tube between a lower portion of the melt and a mold, inclosing the pouring tube and ladle in a tank, and applying superatmospheric pressure within the tank.

3,574,597
ACCELERATION OF THE DISSOLUTION OF LIME IN THE BASIC OXYGEN FURNACE PROCESS
Clifford J. Lewis and Richard S. Bruski, Lakewood, Colo., assignors to The Flintkote Company, White Plains, N.Y.
Continuation-in-part of application Ser. No. 611,277, Jan. 24, 1967. This application Aug. 20, 1969, Ser. No. 859,237
Int. Cl. C21c 7/00

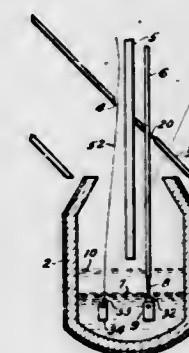
U.S. Cl. 75—53 22 Claims
The rate of dissolution of lime in the slag of a basic oxygen steelmaking furnace is accelerated, and slag control is enhanced, by charging lime to the slag in the presence of a boron-containing compound, particularly one that yields an oxide of boron, especially B₂O₃, under the operating conditions prevailing in the basic oxygen furnace. Illustrative of such boron-containing compounds used as additives with the lime are boron trioxide, boric acid, anhydrous sodium tetraborate, calcium metaborate,

calcined and uncalcined colemanite and rasorite. The additive preferably is delivered to the slag either in intimate



mixture with the lime or separately but substantially simultaneously with the lime.

3,574,598
METHOD FOR CONTROLLING BASIC OXYGEN STEELMAKING
David W. Kern, Slatedale, and Philip D. Stelts, Center Valley, Pa., assignors to Bethlehem Steel Corporation
Filed Aug. 18, 1967, Ser. No. 661,616
Int. Cl. C21c 5/32; G01k 5/32
U.S. Cl. 75—60 6 Claims

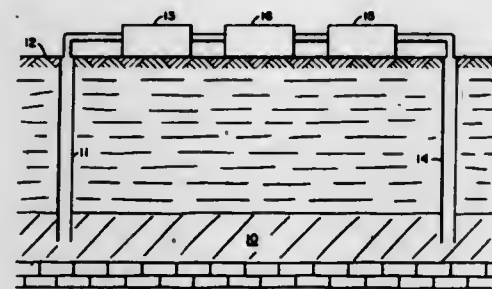


Apparatus capable of being immersed into a molten steel bath to obtain the temperature of the bath and the carbon content of a sample thereof. The apparatus is a hollow receptacle having a cavity capable of retaining and cooling a steel sample. The cavity contains a thermocouple which records the cooling characteristics of the steel sample and especially the liquidus arrest temperature corresponding to a phase transformation of the sample. The liquidus arrest temperature is used as a measure of the carbon content of the steel bath. A second thermocouple may be used to record the bath temperature directly. Also described are processes for controlling various steelmaking and refining processes, especially the basic oxygen steelmaking process.

3,574,599
MINERAL RECOVERY
Gerald D. Orloff and Claude E. Cooke, Jr., Houston, and Donald K. Atwood, Bellaire, Tex., assignors to Esso Production Research Company
Filed June 25, 1968, Ser. No. 739,702
Int. Cl. C22b 3/00, 3/02

U.S. Cl. 75—104 11 Claims
A method for the situ recovery of copper values from copper ores. In the process of this invention, the subterranean formation containing the copper ore is penetrated

by a well extending from the earth surface to the deposit. A strong leach solution having a high ferric iron content is injected by way of the well into the copper ore deposit. Sufficient mineral acid is included in the



leach solution to satisfy the acid requirements of unproductive side reactions. The period during which the leach solution remains in the ore body is regulated to approach the optimum residence time.

3,574,600

PROCESS FOR RECOVERY OF GOLD FROM CARBONACEOUS ORES

Bernard J. Scheiner, Sparks, and Roald E. Lindstrom and Thomas A. Henrie, Reno, Nev., assignors to the United States of America as represented by the Secretary of the Interior

No Drawing. Filed May 15, 1968, Ser. No. 729,382
Int. Cl. C22b 11/08

U.S. Cl. 75-105 3 Claims
Carbonaceous gold ores are rendered amenable to a conventional cyanide recovery process by pretreatment with acid-ozone mixture, or alkaline sodium hypochlorite or alkaline calcium hypochlorite compounds at temperatures under 70° C. Hypochlorite solutions can be generated in situ by electrolysis of chloride solutions.

3,574,601

CORROSION RESISTANT ALLOY

Lewis P. Myers, Mount Penn, and Kermit J. Goda, Jr., Leesport, Pa., assignors to Carpenter Technology Corporation, Reading, Pa.

No Drawing. Filed Nov. 27, 1968, Ser. No. 779,609
Int. Cl. C22c 39/20

U.S. Cl. 75-125 4 Claims
An essentially martensitic Cr-Ni-Mo[W]-Cu stainless steel which has good corrosion resistance in acid media and high strength.

3,574,602

HIGH TENSION TOUGH STEEL HAVING EXCELLENT PROPERTY RESISTING TO DELAYED RUPTURE

Hisashi Gondo, Isao Kimura, Tuneyasu Watanabe, and Mitsuo Honda, Kitakyushu, Japan, assignors to Yawata Iron & Steel Co., Ltd., Tokyo, Japan

No Drawing. Filed Dec. 15, 1967, Ser. No. 690,783
Int. Cl. C22c 39/54

U.S. Cl. 75-126 4 Claims
This invention relates to a high tension tough steel having excellent property resisting to delayed rupture, consisting of 0.05 to 0.80% C, 0.05 to 2.00% Si, 0.30 to 2.00% Mn, 0.05 to 6.00% Cr 0.01 to 0.30% Tr, 0.005 to 0.30% Zr, 0.5 to 0.008% B as basis elements at least one element selected from the group consisting of Sn, Sb and As, from the group consisting of Nb+Ta, W, Hf and Pd and further from the group consisting of Mo, Ni, V and Cu, balance being Fe and impurities

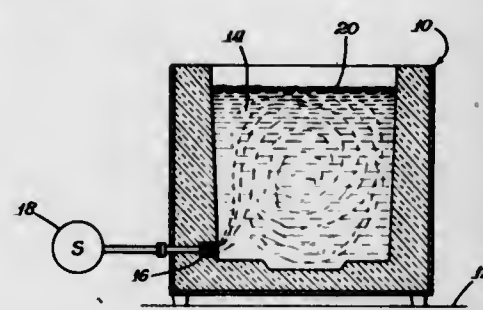
3,574,603

METHOD FOR PRODUCING STAINLESS STEEL

John A. Rassenfoss, Park Ridge, Ill., assignor to AMSTED Industries Incorporated, Chicago, Ill.

Filed Sept. 15, 1967, Ser. No. 667,977
Int. Cl. C21c 7/00; C22c 33/00

U.S. Cl. 75-129 5 Claims



In the production of stainless steels involving additions of titanium, columbium or tantalum, the molten steel is agitated in the ladle by the introduction of an inert gas from a lower portion of the side of the ladle, while maintaining a layer of slag on the melt. The melt is cast into a slab or other suitable form by pressure pouring, which involves disposing the ladle in an enclosure with a pouring tube between a mold and a lower portion of the melt, and applying superatmospheric pressure within the enclosure. Preferably, an inert gas atmosphere is maintained in the casting cavity of the mold during the pouring operation.

3,574,604

NICKEL-CHROMIUM ALLOYS RESISTANT TO STRESS-CORROSION CRACKING

Harry R. Copson, Mahwah, and Daniel van Rooyen, Ramsey, N.J., assignors to The International Nickel Company Inc., New York, N.Y.

No Drawing. Filed May 26, 1965, Ser. No. 459,110
Int. Cl. C22c 19/00

U.S. Cl. 75-171 4 Claims
Intergranular stress-corrosion attack of metal articles in contact with aerated high purity water at elevated temperature is minimized when such articles are formed from nickel-chromium and nickel-chromium-iron alloys of high chromium content.

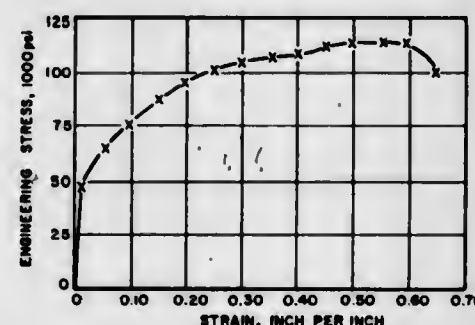
3,574,605

WELDABLE, NONMAGNETIC AUSTENITIC MANGANESE STEEL

Albert M. Hall, 2342 Dorset Road 43221; Donald B. Roach, 3864 Mountainview Road 43221; and Dimon A. Roberts, 1710 King Ave. 43212, all of Columbus, Ohio; and Frank A. Pimentel, 1653 98th St., Niagara Falls, N.Y. 14204

Filed June 24, 1968, Ser. No. 739,305
Int. Cl. C22c 39/20

U.S. Cl. 75-128 3 Claims



A weldable, nonmagnetic austenitic manganese steel of the Hadfield type and compatible weld metal which will remain nonmagnetic and tough as welded and without the requirement of post-weld heat treatment comprising .3% carbon, 13% manganese, 5% nickel, 3 to 5% chromium, 1% molybdenum and .5% vanadium.

3,574,606

METHOD FOR ADDING TELLURIUM DIOXIDE TO MOLTEN STEEL

William Edgar, Glenwood, Ill., and Ralph E. Pray, Pasadena, Calif., assignors to Inland Steel Company, Chicago, Ill.

No Drawing. Filed July 3, 1968, Ser. No. 742,167
Int. Cl. C22c 33/02, 39/54

U.S. Cl. 75-129 5 Claims

Adding tellurium to molten steel using briquet containing compacted tellurium dioxide powder and steel machine shop turnings.

3,574,607

ALUMINUM-COPPER-MERCURY COMPLEX AND METHODS FOR PRODUCING THE SAME

George G. Merkl, 517 Boulevard, New Milford, N.J. 07646

No Drawing. Continuation-in-part of abandoned application Ser. No. 672,438, Oct. 3, 1967. This application Apr. 17, 1969, Ser. No. 828,057

U.S. Cl. 75-134 27 Claims

A stable, electrically conductive, chemically bonded complex of aluminum-mercury and copper alone or in combination with any one or more of tin, cadmium, zinc, iron, silver and lead and methods for producing the same. This is a continuation-in-part of U.S. patent application Ser. No. 672,438, filed Oct. 3, 1967, now abandoned.

3,574,608

BERYLLIUM-ANTIMONY COMPOSITION

Albert James Stonehouse, Lyndhurst, Ohio, assignor to The Brush Beryllium Company, Cleveland, Ohio

No Drawing. Filed Nov. 1, 1968, Ser. No. 772,864
Int. Cl. C22c 25/00, 31/00

U.S. Cl. 75-149 10 Claims
There is provided a composition of beryllium and antimony containing from 0.1% to 16% by weight of antimony and characterized by improved machining characteristics over those obtained with beryllium. There is also provided a new compound of antimony and beryllium, Sb₃Be₂.

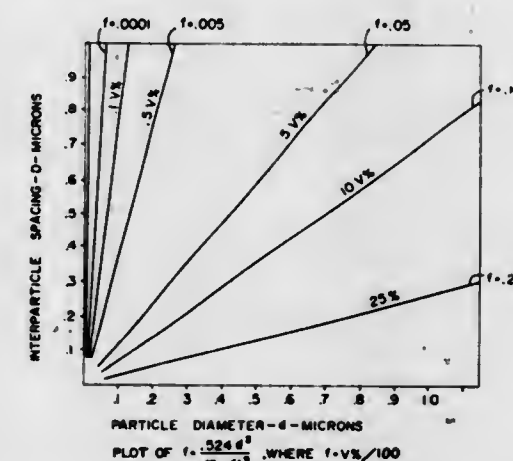
3,574,609

PROCESS FOR DISPERSOID STRENGTHENING OF COPPER BY FUSION METALLURGY AND PRODUCTS THEREOF

Walter L. Finlay, New York, N.Y., and Donald A. Hay, Medfield, Mass., assignors to Copper Range Company, New York, N.Y.

Filed June 9, 1967, Ser. No. 644,954
Int. Cl. C22c 9/00, 1/02

U.S. Cl. 75-153 26 Claims



In the production of dispersoid strengthened copper by fusion metallurgy, for a particular copper matrix-dispersoid particle system characterized by particular spatial and wetting relationships, requirements for stable and uni-

form equilibrium are indicated when the system is molten and when the system is solidifying and solidified. In the molten system, for the given wetting relationships, establishment of such equilibrium has been found to be a function of spatial relationships among size, separation and volume concentration of the particles. In the solidifying and solidified system, for the given spatial relationships, maintenance of such equilibrium has been found to be a function of system composition as determinative of the wetting relationships.

3,574,610

DENTAL GOLD ALLOY

Emil M. Prosen, Bala-Cynwyd, Pa., assignor to Nobilium Products, Inc., Philadelphia, Pa.

No Drawing. Filed Nov. 1, 1968, Ser. No. 772,794
Int. Cl. C22c 5/00

U.S. Cl. 75-165 6 Claims

The invention provides a low melting point precious metal or dental gold alloy consisting of gold, nickel and gallium or gold, nickel, gallium and palladium. The yellow gold alloy which consists only of gold, gallium and nickel has a melting point of about 1400° F. and can be cast directly to prefabricated porcelain teeth. Also, it has a high Brinell hardness and high tensile strength. The white or platinum colored dental gold alloy, which consists of gold, gallium, nickel and palladium, has a melting point of approximately 1500° F., high Brinell hardness, and high tensile strength. Both alloys are tarnish resistant.

3,574,611

HIGH TEMPERATURE DENTAL GOLD ALLOY

Emil M. Prosen, Bala-Cynwyd, Pa., assignor to Nobilium Products, Inc., Philadelphia, Pa.

No Drawing. Filed Nov. 18, 1968, Ser. No. 776,785
Int. Cl. C22c 5/00

U.S. Cl. 75-165 7 Claims

The present invention provides high temperature dental gold alloys having melting points above 2000° F. and adapted to have fused thereto low fusing porcelains having fusing temperatures of about 1800° F. The alloys consist of gold, gallium and palladium, and one or more additional elements selected from the group consisting of nickel, silver, platinum and iridium. During casting the gallium forms an oxide on the surface of the alloy which promotes bonding of the fused porcelain thereto without discoloring the porcelain.

3,574,612

NICKEL-CHROMIUM ALLOY

Roy F. Maness, Richland, Wash., assignor to the United States of America as represented by the United States Atomic Energy Commission

No Drawing. Filed Feb. 3, 1969, Ser. No. 796,176
Int. Cl. C22c 19/00

U.S. Cl. 75-171 2 Claims

A nickel alloy containing 30 to 35 weight percent chromium and 3.5 to 3.9 weight percent silicon with small amounts of carbon, titanium and manganese is highly corrosion resistant to hot, liquid and vapor phase nitric acid solutions, containing iron (III), chromium (VI) and fluoride ions.

3,574,613

METHOD OF ELECTROSTATIC RECORDING ON A THERMOPLASTIC RECORDING ELEMENT

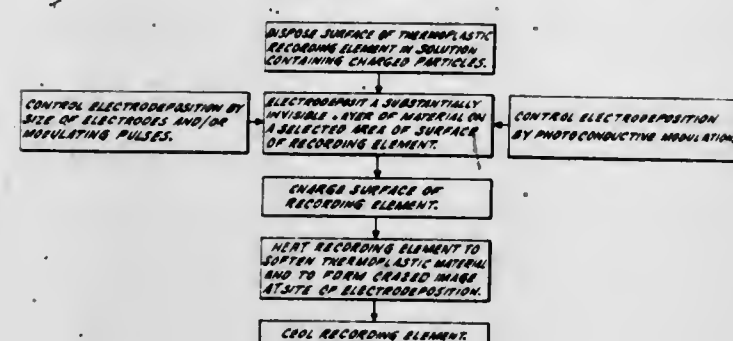
Frederick H. Nicoll, Princeton, N.J., assignor to RCA Corporation

Filed May 31, 1968, Ser. No. 733,496
Int. Cl. G03g 13/22

U.S. Cl. 96-1.1 5 Claims

A method of recording information on a thermoplastic recording element comprises (1) disposing the thermo-

plastic surface of the recording element in a solution of charged particles, and (2) electrodeposition, as by electroplating or electrophoresis, the particles from the solution onto only a selected area of the surface, representative of the information, in a quantity corresponding to an average thickness of at least 2×10^{-4} monolayer of deposited particles, but substantially invisible to the naked eye. The



recording element with the electrodeposited information thereon may be stored as long as desired, and the information can be made visible, when desired, by (3) charging the surface with a uniform electrostatic charge, and (4) heating the recording element to a temperature at which the thermoplastic material deforms and provides a visible crazed image of the information.

3,574,614

PROCESS OF PREPARING MULTIPLE COPIES FROM A XEROPRINTING MASTER

Leonard M. Carreira, Webster, N.Y., assignor to Xerox Corporation, Rochester, N.Y.

Filed Jan. 6, 1967, Ser. No. 607,747

Int. Cl. G03g 13/16, 13/22; B41m 1/06

U.S. Cl. 96—1.4 2 Claims

This application relates to a method of preparing a novel xeroprinting master utilizing electrophoretic principles. Upon introducing an insulating material into a photoelectrophoretic imaging suspension it has been determined that the areas from which the photosensitive particles migrate become insulating and capable of supporting an electrostatic charge in an imagewise pattern.

3,574,615

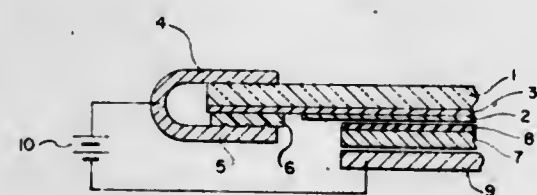
MECHANISM FOR ELECTRICALLY CONTACTING A THIN LAYER AND USE THEREFOR

Theodore H. Morse, Rochester, N.Y., assignor to Eastman Kodak Company, Rochester, N.Y.

Filed Apr. 4, 1968, Ser. No. 718,802

Int. Cl. G03g 5/06

U.S. Cl. 96—1.5 1 Claim



Electrical contact with a thin conductive layer is obtained using a compliant sheet of intermediate conductivity urged by a metallic conductive clamp into intimate face-to-face contact with a surface of the thin conductive

layer. This structure is especially useful in electrophotographic processes in which the thin conductive layer is transparent and serves as one of the two electrodes in field-induced, imagewise charge transfer.

3,574,616

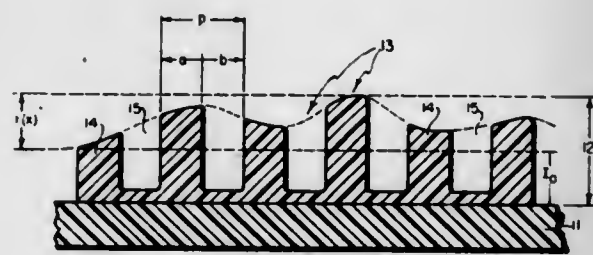
MODULATED IMAGE PHOTOGRAPHY

Peter F. Mueller, Concord, Mass., assignor to Technical Operations, Incorporated, Burlington, Mass.

Filed June 9, 1967, Ser. No. 645,042

Int. Cl. G03c 5/04

U.S. Cl. 96—27 14 Claims



An optical system is described for constructing an image of a scene from a phase record of the scene modulated with a spatially-distributed periodic carrier in which a diffraction pattern is erected in Fourier transform space, and spatially filtered to construct the image. A phase record comprised of several images overlapping as "multiple exposures" in the same storage medium, each modulated with a periodic carrier extending throughout the image but having a characteristic by which at least one of its diffraction orders convolved with a spectrum of the image is spatially separable from diffraction orders of the other periodic carrier modulations in transform space is described. The several images can represent different scenes; or they can be registered images of a single colored scene, in which case their respective carriers represent spectral zones.

3,574,617

NOVEL PHOTOSENSITIVE COATING SYSTEMS

Martin Skoultch, Somerset, N.J., assignor to National Starch and Chemical Corporation, New York, N.Y.

No Drawing. Continuation-in-part of application Ser. No. 626,945, Mar. 30, 1967, now Patent No. 3,429,852.

This application Mar. 4, 1968, Ser. No. 709,969

The portion of the term of the patent subsequent to Feb. 25, 1986, has been disclaimed

Int. Cl. G03c 1/68

U.S. Cl. 96—35.1 24 Claims

Photosensitive coating systems prepared by the deposition, upon a solid substrate, of an organic solvent solution or aqueous emulsion of a copolymer containing moieties derived from a particular class of ethylenically unsaturated benzophenone derivatives; the presence of said moieties rendering the resulting polymer coating sensitive to ultra-violet or visible light which affects the crosslinking, or insolubilization, of the thus exposed coat-

ings. The latter photosensitive coating systems are particularly suitable for use in various applications such, for example, as in the lithographic and chemical milling fields.

3,574,618

PHOTOGRAPHIC PROCESS AND APPARATUS

Alvin Cronig, Lexington, Mass., assignor to Itek Corporation, Lexington, Mass.

Filed Sept. 3, 1968, Ser. No. 756,797

Int. Cl. G03c 5/24, 5/38

U.S. Cl. 96—48 20 Claims

Improved photographic gel processes, apparatus, and compositions wherein the photographic materials are carried in a gel composition. The gel composition preferably comprises the reaction product of a solution of image forming materials and a gel former. Preferably the gel composition structure is heat-reversible and flexible. In a preferred method of this invention, a photosensitive copy medium is exposed and contacted with a gel composition comprising a reaction product of a solution of image forming materials and a gel former. The gel composition is allowed to remain in contact with photosensitive material for a sufficient time to process the exposed photosensitive material. The gel composition is cooled during the processing in order to form a layer which is strippable from the photosensitive material. In one embodiment of this invention, the gel composition is in the liquid or viscous state when it is contacted with the photosensitive layer. The gel composition also may be in the form of a tape, gel roller, or the like when it is brought into contact with the photosensitive layer. Another preferred embodiment of this invention is where the gel composition is heat reversible and therefore, can be heated after use to convert to a liquid or viscous state and can then be reused in the system which requires a liquid or viscous gel composition for the starting material. A gel composition comprising a solution of metal ions or physical developer is an especially preferred system.

3,574,619

CONCENTRATED LIQUID COLOR DEVELOPERS CONTAINING BENZYL ALCOHOL

John Joseph Surash, Rochester, N.Y., assignor to Eastman Kodak Company, Rochester, N.Y.

No Drawing. Filed Apr. 10, 1968, Ser. No. 720,380

Int. Cl. G03c 3/00, 5/30

U.S. Cl. 96—55 11 Claims

Concentrated acidic solutions containing benzyl alcohol and water are prepared using simple liquid glycols, e.g., ethylene glycol. Such concentrates render feasible the packaging of photographic color developing agents together with benzyl alcohol in concentrated liquid color developer components.

3,574,620

PROCESS FOR RENDERING CELLULOSIC-POLY-ESTER SUBSTRATES STAIN RESISTANT

Giuliana C. Tesoro, Dobbs Ferry, N.Y., assignor to J. P. Stevens & Co., Inc., New York, N.Y.

No Drawing. Filed Mar. 4, 1968, Ser. No. 709,954

Int. Cl. B44d 1/44, 1/14

U.S. Cl. 117—62.1 2 Claims

A process for producing both a durable stain-releasing finish and a durable-press finish in a cellulosic textile article comprising treating the article with a polymer containing free carboxyl groups, contacting the treated article with neutral metallic salt to convert substantially all of the free carboxyl groups to the corresponding metal salt, and treating the article with a textile-modifying resin precursor and acid catalyst and heating until a stain-releasing and durable-press finish is obtained.

3,574,621

PROCESS FOR THE DEVELOPMENT OF PHOTOGRAPHIC SILVER IMAGES IN ACID MEDIUM 1,4-DIAZINE

Heinrich Schaller, Fribourg, Matthias Schellenberg, Marly-le-Grand, and Ernst Schumacher, Fribourg, Switzerland, Rolf Steiger, Berkeley, Calif., and Reinhard Steinmetz, Ludwigshafen Naudach, Germany, assignors to Ciba Limited, Basel, Switzerland

No Drawing. Filed Apr. 4, 1968, Ser. No. 718,927

Claims priority, application Switzerland, Apr. 20, 1967, 5,655/67

Int. Cl. G03c 5/30

U.S. Cl. 96—66 10 Claims

This invention is based on the completely surprising observation that a large class of organic compounds is excellently suitable for the development of photographic silver images in an acid medium. The subject of this invention is accordingly a process for the development of photographic silver images from silver salts in which the silver is liberated from the silver salts in an acid medium in the presence of reduction products of 1,4-diazine compounds which have at most been reduced to the dihydro stage.

3,574,622

PHOTOPOLYMERIZATION USING N-ALKOXY HETEROCYCLIC INITIATORS

Phillip W. Jenkins, Donald W. Heseltine, and John D. Mee, Rochester, N.Y., assignors to Eastman Kodak Company, Rochester, N.Y.

No Drawing. Filed Oct. 9, 1968, Ser. No. 766,304

Int. Cl. G03c 1/70; C09b 23/10, 23/06

U.S. Cl. 96—67 42 Claims

Energy-sensitive compounds containing a heterocyclic nitrogen atom substituted with an —OR group where R is an alkyl, aryl, or acyl radical, are photochemical initiators for the polymerization of vinyl monomers.

3,574,623

SPECTRALLY SENSITIZED SILVER DYE-BLEACH PHOTOGRAPHIC ELEMENTS

Carl James Williams, Jr., Rochester, N.Y., assignor to Eastman Kodak Company, Rochester, N.Y.

No Drawing. Filed Aug. 19, 1965, Ser. No. 481,064

Int. Cl. G03c 1/76, 1/10

U.S. Cl. 96—73 12 Claims

Photographic elements useful in the silver dye bleach process and containing a bleachable dye in association with a silver halide emulsion are efficiently spectrally sensitized to record red light with the use of a symmetrical thiocarbocyanine dye whose cationic portion is free from carboxyalkyl and alkylsulfate substituent groups, and to record green light with the use of symmetrical oxacarbocyanine dye whose cationic portion is free from carboxyalkyl and alkylsulfate substituent groups.

3,574,624

PHOTOGRAPHIC ELEMENTS CONTAINING DITHIOLIUM SALTS

George A. Reynolds and James A. Van Allan, Rochester, N.Y., assignors to Eastman Kodak Company, Rochester, N.Y.

No Drawing. Filed Feb. 8, 1968, Ser. No. 703,895

Int. Cl. G03c 1/72

U.S. Cl. 96—89 18 Claims

Photographic elements having a support coated with a light-sensitive layer including a bleaching agent and a dithiolium salt which, upon exposure to activating radiation, is bleached to a colorless form, provide positive photographic images directly upon exposure. The sulfur atoms of the dithiolium salt nucleus can have either a 1,2- or a 1,3-relationship, and all carbon atoms in the nucleus can be substituted with such groups as hydrogen atoms, alkyl radicals, amino radicals, mono- or polycyclic aryl radicals and oxygen- or sulfur-containing heterocy-

gel. The fried product may be frozen and reheated if desired.

3,574,639 **LIQUID CENTER CONFECTIONARY PRODUCT** **AND PROCESS FOR PRODUCING THE SAME**

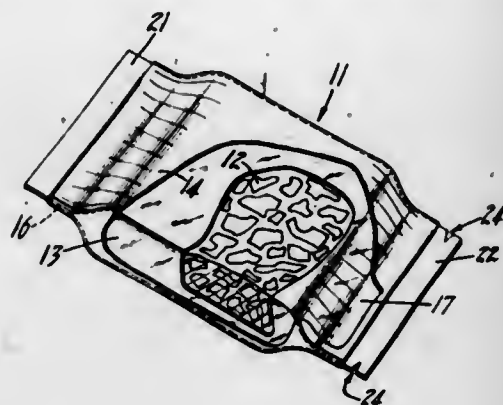
John H. Forkner, 2116 Mayfair Drive W.,
Fresno, Calif. 93703
Continuation-in-part of application Ser. No. 585,460,
Oct. 10, 1966. This application Sept. 22, 1969, Ser.
No. 864,940

Int. Cl. A23g 3/00

U.S. Cl. 99—138

6 Claims

A process for preparing syrup center coated confections having a center consisting of a caramel or fruit syrup, etc. covered with a chocolate coating. The center is first frozen before being coated and the formation of cracks and pinholes in the chocolate coating is prevented by the application of an intermediate layer of a buffer coating consisting of cheese; also products resulting from the process.



fresh meat product to change to a bright red color which the consumer associated with freshness.

3,574,640 **TREATMENT OF MUSTARD SEED**

Paul A. Dougherty, Jr., Deerfield, Ill., assignor to
Plochman, Inc., Chicago, Ill.

No Drawing. Filed Feb. 21, 1966, Ser. No. 528,811
Int. Cl. A23l 1/22

U.S. Cl. 99—140

6 Claims

Mustard seed is contacted with saturated steam for a time sufficient to inactivate the enzyme, myrosinase, to produce a mustard product having a controlled degree of bite and a non-toasted flavor.

3,574,641 **HIGH NEUTRALIZED PROPYLENE GLYCOL** **ALGINATE IN FRENCH DRESSING**

John J. O'Connell, San Diego, and Darrell A. Betz,
Placentia, Calif., assignors to Kelco Company, San
Diego, Calif.

No Drawing. Filed Mar. 29, 1968, Ser. No. 717,445
Int. Cl. A23l 1/24

U.S. Cl. 99—144

2 Claims

A French dressing containing a propylene glycol alginate having the following characteristics:

Calcium content as CaO—less than about 0.7% by weight
Viscosity in 2% aqueous solution—100 to 2000 c.p.s.
Neutralization as sodium alginate—45 to 55%
Esterification—35-45%
Unreacted acidity—the balance and not less than about
3%
pH in 2% aqueous solution—4.0 to 5.0.

3,574,642 **PACKAGE FOR AND METHOD OF** **PACKAGING MEATS**

Karl Frederick Weinke, Neenah, Wis., assignor to
American Can Company, New York, N.Y.
Continuation of application Ser. No. 499,811, Oct. 21,
1965. This application May 15, 1969, Ser. No. 826,087
Int. Cl. B65b 25/06, 31/00

U.S. Cl. 99—174

9 Claims

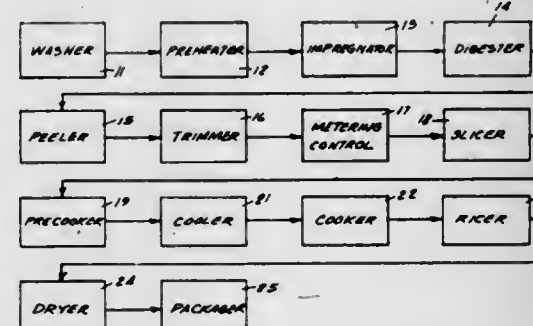
A package for and a method of packaging meats are disclosed wherein the package includes an inner oxygen-permeable member which may be either gas flushed or evacuated and an outer oxygen-impermeable member which may also be gas flushed or evacuated. The package preserves the freshness of the meat until the meat is ready to be marketed to the consumer. For marketing, the outer wrapper is removed and the inner package is displayed to

3,574,643 **METHOD OF PRODUCING DEHYDRATED** **POTATO FLAKES**

Arnold L. Lewis, Dowagiac, Mich., assignor to Overton
Machine Company, Dowagiac, Mich.
Filed June 14, 1967, Ser. No. 646,023
Int. Cl. A23b 7/02, 7/03

U.S. Cl. 99—207

11 Claims



A method and apparatus for the production of dehydrated potato flakes wherein washed raw whole potatoes are heat-tempered and contacted with a caustic solution, with subsequent removal therefrom to allow impregnation to occur sufficient to effect at least a partial digestion of the outer portion of the potato before peeling, trimming, slicing, pre-cooking, cooling, cooking, ricing, drying and packaging. A system and apparatus for continuously filtering the wash water, the caustic solution and the heating fluids so as to recirculate them for reuse within a constant temperature cooling, pre-cooking and cooking apparatus providing greater economy.

3,574,644 **METHOD OF RENDERING NORMALLY FLAM-** **MABLE MATERIALS FLAME RESISTANT**

Franciszek Olstowski, Freeport, and Wallace T. McMichael, John D. Watson, Sr., and Donald W. Pennington, Lake Jackson, Tex., William A. Foster, Midland, Mich., and Edward L. Hill, Littleton, Colo., assignors to The Dow Chemical Company, Midland, Mich.
No Drawing. Filed Mar. 22, 1965, Ser. No. 441,895
Int. Cl. C09d 5/14, 5/16; B28b 9/20

U.S. Cl. 106—15

5 Claims

This invention relates to a process for increasing the flame resistance of flammable materials and to the product produced thereby. Increased flame resistance is achieved by incorporating into a flammable material from about 2 to about 95 weight percent of heat expandable graphite

flakes. Upon contact with high temperature, the expandable graphite contained in the flammable material expands to form a tumid refractory insulating layer thereby preventing further combustion.

3,574,645 **TRANSPARENT THORIA-BASE CERAMICS CON-** **TAINING Y₂O₃ AND METHOD FOR PRODUC-** **ING SAME**

Richard C. Anderson, Schenectady, N.Y., assignor to
General Electric Company
No Drawing. Filed Mar. 17, 1969, Ser. No. 807,994
Int. Cl. C04b 33/00

U.S. Cl. 106—39

5 Claims

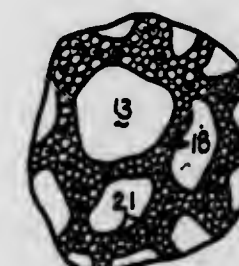
The preparation of high density thoria-base ceramic bodies containing up to about 5 mole percent of Y₂O₃ is disclosed. These bodies have high orders of in-line transmission of light and are prepared by pressing the mixed powders and sintering in a hydrogen-water vapor atmosphere until theoretical density is achieved.

3,574,646 **HEAT RESISTANT MATERIALS**

Marco Wismer, Gibsonia, Pa., Leonard D. Rood, Silver Spring, Md., and Joseph F. Bosso, Lower Burrell, Pa., assignors to PPG Industries Inc., Pittsburgh, Pa.
Continuation-in-part of application Ser. No. 510,336, Nov. 29, 1965, which is a continuation-in-part of applications Ser. No. 348,229, Feb. 28, 1964, and Ser. No. 438,826, Mar. 3, 1965, both applications 510,336 and 438,826, being continuations-in-part of application Ser. No. 228,475, Oct. 4, 1962, which is a continuation of application Ser. No. 106,291, Apr. 28, 1961. This application Mar. 20, 1968, Ser. No. 714,496
Int. Cl. B28b 21/02; C04b 21/00, 35/00

U.S. Cl. 106—41

27 Claims



This invention relates to novel inorganic refractory foams, their precursors and methods of manufacture. The foams are formed by heating a filler, unsaturated polyester foam containing a refractory filler, a fluxing agent which is a compound of a metal of the first and second groups of the Periodic Table and, if desired, a heat resistant fibrous material, thereby consuming the polyester binder to produce the inorganic foam. Alternatively, the binder may be reduced to a carbonaceous state to provide an insulative material useful per se as a precursor for the inorganic foams.

3,574,647 **LOW DENSITY ZEOLITE EXCHANGE CERAMICS** **AND METHOD**

William H. Flank, Broomall, James E. McEvoy, Morton, and John R. Stuart, Brookhaven, Pa., assignors to Air Products and Chemicals, Inc., Philadelphia, Pa.
No Drawing. Filed Dec. 27, 1967, Ser. No. 693,733
Int. Cl. C04b 33/00

U.S. Cl. 106—40

6 Claims

Low density porous ceramic substances are prepared from synthetic calcium-form crystalline zeolites by controlled heating at a temperature of about 900° to 1200° C. followed by cooling. The product is substantially non-zeolitic with X-ray-detectable crystallinity and features structural integrity with unusually low density.

3,574,648 **METHOD FOR THE PRODUCTION OF SYNTHETIC** **CALCIUM SULFATE HEMIHYDRATE**

Franz Wirsching, Bruno Wanders, and Karl Knauf, Iphofen, Germany, assignors to Gebr. Knauf Westdeutsche Gipswerke, Iphofen, Middle Franconia, Germany
Continuation-in-part of application Ser. No. 279,667, May 9, 1963. This application Dec. 18, 1967, Ser. No. 691,372
Int. Cl. C04b 11/02, 11/08

U.S. Cl. 106—110

3 Claims

By-product gypsum arising in the extraction of phosphorus-containing minerals and contaminated with phosphoric acid and its water-soluble salts is calcined, the calcine is treated with water and a neutralizing agent to form calcium sulfate dihydrate and water-insoluble compounds of the contaminants and the dihydrate is subjected to a second calcination to produce a synthetic calcium sulfate hemihydrate which has properties comparable to or better than those of plaster of Paris derived from natural gypsum.

3,574,649 **PROCESS FOR PRODUCING CONTINUOUS** **BORON FILAMENTS**

Roy Fanti, Springfield, Mass., and Urban E. Kuntz, East Hartford, Conn., assignors to United Aircraft Corporation, East Hartford, Conn.
Filed Feb. 24, 1967, Ser. No. 618,509
Int. Cl. C23c 11/00

U.S. Cl. 117—106

8 Claims



A chemical deposition process for producing continuous filamentary materials, such as boron, by reducing a decomposable gas such as boron trichloride, on a resistively heated wire, the wire being drawn through a reactor incorporating reactant gas introduction at both ends thereof and a central exhaust to thereby provide both concurrent and countercurrent flow conditions within the reactor and differing gas compositions at the ends.

3,574,650 **VACUUM VAPOR DEPOSITION WITH CONTROL** **OF ELEVATION OF METAL MELT**

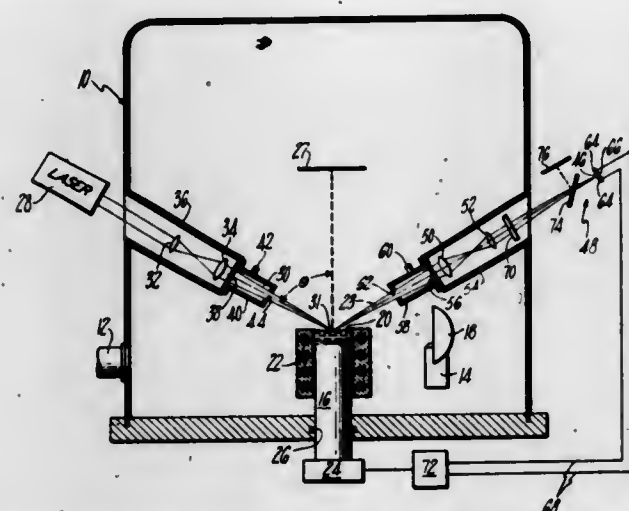
Randolph D. House, Manchester, Conn., assignor to United Aircraft Corporation, East Hartford, Conn.
Filed Mar. 13, 1969, Ser. No. 806,956
Int. Cl. C23c 13/02, 13/12

U.S. Cl. 117—107

5 Claims

In the processes for forming protective coatings on metal substrates, particularly the nickel-base and cobalt-

base superalloys, by melting a coating material to cause vaporization thereof, a monochromatic light beam is utilized in sensing and controlling displacement of the surface elevation of the melt:



lized in sensing and controlling displacement of the surface elevation of the melt:

3,574,651

WATER BASED PAINT COMPOSITIONS CONTAINING AN ALKALI METAL ORGANOSILICONATE
Siegfried Nitzsche, Ewald Pirson, and Michael Roth, Burghausen, Upper Bavaria, Germany, assignors to Wacker-Chemie G.m.b.H., Munich, Bavaria, Germany
No Drawing. Filed Mar. 20, 1967, Ser. No. 624,171
Int. Cl. C08b 21/32; C08g 47/00; C09d 3/82

U.S. Cl. 106-193

7 Claims
Compositions are disclosed which are useful as water based paints or which will form paints upon mixing with up to 80% water, which consist essentially of 18 to 100% by weight of a mixture of 0.07 to 1.0 part of alkali metal organosiliconate and 1.0 part by weight of pigment and up to 2% by weight of bonding agents other than alkali metal organosiliconates.

3,574,652

PROTECTIVE COATING ON A METALLIC SURFACE

Stephen H. Alexander, St. Louis, Mo., and Gilbert W. Tarver, El Dorado, Ark., assignors to Monsanto Company, St. Louis, Mo.

No Drawing. Continuation-in-part of application Ser. No. 444,019, Mar. 30, 1965, which is a continuation-in-part of abandoned application Ser. No. 64,258, Oct. 24, 1960. This application June 13, 1967, Ser. No. 645,629
Int. Cl. C09d 3/24, 5/08

U.S. Cl. 106-278

6 Claims
A protective coating for metallic surfaces consisting of a primer coating containing from 60 to 40% by weight of a liquid hydrocarbon solvent and from 40 to 60% by weight of a non-air blown, solvent extracted asphalt having a penetration at 77° F. of 1 to 25 and a softening point of 140-220° F., and a bituminous finish coating compatible with said primer coating.

3,574,653

HIGH-PURITY SYNTHETIC PITCH

Theodore Edstrom, Parkview, Irwin C. Lewis, Lakewood, and Charles V. Mitchell, Shaker Heights, Ohio, assignors to Union Carbide Corporation

No Drawing. Continuation-in-part of application Ser. No. 196,906, May 23, 1962. This application July 26, 1966, Ser. No. 567,838
Int. Cl. C08h 13/08

U.S. Cl. 106-279

10 Claims
A synthetic pitch having a softening point in the range from about 50° C. to about 250° C. and comprising acenaphthene and complex aromatized pyrolysis products of acenaphthylene polymers is produced by heating acenaphthylene to form a solid polymeric mixture, and then further heating the solid mixture so produced to cause it to

liquefy and reflux to produce said pitch by pyrolysis of the polymers.

3,574,654

METHOD OF PRODUCING SPHEROIDAL AGGLOMERATES

Robert E. Cowan and E. Philip Ehart, Los Alamos, N. Mex., assignors to the United States of America as represented by the United States Atomic Energy Commission

No Drawing. Filed July 12, 1968, Ser. No. 744,319
Int. Cl. C09c 3/00

U.S. Cl. 106-309

5 Claims
A method of forming spheroidal agglomerates of particles in which oleic acid is mixed with a powdered ceramic material, adding to this mixture ammonium hydroxide, and subsequently agitating.

3,574,655

METHOD FOR PREPARING FOAMED SILICATE GLASS

Aaron Goldsmith, Sepulveda, Calif., assignor to Lockheed Aircraft Corporation, Burbank, Calif.

No Drawing. Filed May 4, 1967, Ser. No. 635,998
Int. Cl. C04b 33/00

U.S. Cl. 106-402

12 Claims
Method of making foamed glass insulation by forming a mixture of a finely divided vaporizable metal with at least two glasses. The first glass becomes fluid at or near the boiling point of the metal and the second glass is miscible with the first glass to raise its viscosity. The entire mixture is heated to vaporize the metal and form cells within the molten glass, after which the viscosity of the glass is increased and the glass is cooled to solidification.

3,574,656

WALLPAPER

Barry John Sauntson, Rushden, Jack Bernard Haywood, Wellingborough, Brian George Elgood, Higham Ferrers, and Graham Brown, Wellingborough, England, assignors to Scott Bader & Co. Limited, Wellingborough, England

Filed June 19, 1967, Ser. No. 647,126
Claims priority, application Great Britain, June 23, 1966, 28,213/66
Int. Cl. B44d 1/10, 1/14

U.S. Cl. 117-6



Ground coated wallpaper is provided with a washable and strippable coating by applying an aqueous emulsion of a copolymer consisting essentially of 30-80 parts by weight of vinylidene chloride and 70-20 parts by weight of an alkyl acrylate and/or methacrylate. Part of the alkyl acrylate or methacrylate may be replaced by acrylonitrile and/or methacrylonitrile, and other monomers may be present, notably the amide of acrylic or methacrylic acid, and/or a copolymerizable acid such as acrylic or methacrylic acid.

3,574,657

POLYMERIC IMAGES FORMED BY HEAT

Leo S. Burnett, Scarsdale, N.Y., assignor to FMC Corporation, New York, N.Y.

No Drawing. Filed Dec. 14, 1967, Ser. No. 690,399
Int. Cl. B44c 1/22; C41n 1/08; B44d 1/46

U.S. Cl. 117-8

4 Claims
Polymeric images are formed by exposing a cured allylic resin coating to a heat pattern. The coating is removed in the heated areas leaving a cured polymeric image in the unheated areas. The resulting coating can be inked and used as a printing surface for producing printed copies.

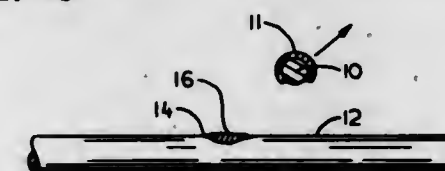
3,574,658

DRY-LUBRICATED SURFACE AND METHOD OF PRODUCING SUCH SURFACES

Marion M. Fulk, Livermore, Calif., and John E. Schrodt, Boulder, Colo., assignors to Ball Brothers Research Corporation, Boulder, Colo.

Filed Dec. 22, 1967, Ser. No. 694,028
Int. Cl. B05b 17/00; B24c 1/10

U.S. Cl. 117-8



16 Claims
Dry lubricant such as molybdenum disulfide is applied to a solid surface by interposing the lubricant between the surface and a force generating means such as a peening particle, preferably by applying the lubricant initially to the particle, and then fusing the lubricant to the surface by bringing the force to bear upon the surface, and peened surfaces having dry lubricant impacted or fused thereon.

3,574,659

PROCESS OF TEXTURED RESINOUS SHEET PREPARATION

Harold Kwart, Newark, Leon B. Palmer, Little Falls, and Robert P. Conger, Park Ridge, N.J., assignors to Congoleum Industries, Inc., Kearny, N.J.

Filed Mar. 28, 1969, Ser. No. 811,524
Int. Cl. B44d 1/14; B32b 3/30

U.S. Cl. 117-11

24 Claims
A process for producing a resinous composition having a textured or embossed surface which comprises selectively contacting a resinous polymer containing a hydrazine derivative dispersed therein with an oxidizing agent for said hydrazine derivative, thereby resulting in the in-situ formation of a gas generating blowing system. The embossed products resulting from this process.

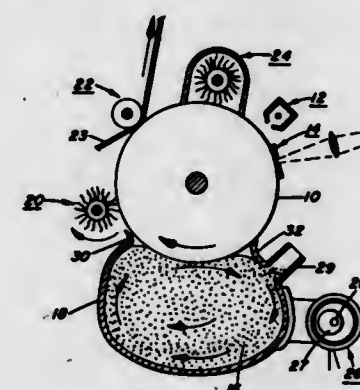
3,574,660

ORBITAL DEVELOPER STREAM DEVELOPMENT

Robert J. Hagenbach, Rochester, N.Y., assignor to Xerox Corporation, Rochester, N.Y.

Filed July 25, 1966, Ser. No. 567,475
Int. Cl. G03g 13/08, 15/08

U.S. Cl. 117-17.5



12 Claims
Electrostatic latent images are developed by developer material in a chamber having a curved bottom surface by transmitting to the developer material in contact with the chamber sufficient oscillatory energy to circulate a stream of the developer material in an orbital path in a substantially vertical plane, the oscillatory energy having an axis of oscillation perpendicular to the vertical plane and contacting the upper periphery of the stream of developer material with a surface bearing an electrostatic latent image.

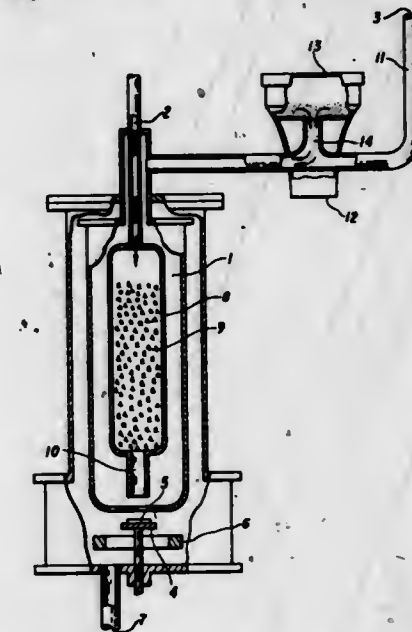
3,574,661

DISPERSION STRENGTHENED METALS AND PROCESS FOR MAKING SAME

Gene F. Wakefield, Richardson, Tex., assignor to Texas Instruments Incorporated, Dallas, Tex.

Filed Sept. 27, 1966, Ser. No. 582,324
Int. Cl. B44d 1/12; C23c 11/00

U.S. Cl. 117-26



14 Claims
A method of providing a strong, ductile, and oxidation-resistant composite by chemically vapor depositing a metal on a substrate in the presence of refractory hard particles which are incorporated in the metal matrix. Exemplary is the decomposition of one or more metal halides by hydrogen reduction in the presence of alumina to incorporate the alumina in the metal matrix and provide a composite having the above-noted properties.

3,574,662

METHOD OF DEPOSITING POLYMERIC MATERIALS ON SUBSTRATES

John R. Gage, Stow, Ohio, assignor to The Goodyear Tire & Rubber Company, Akron, Ohio

No Drawing. Filed Dec. 29, 1967, Ser. No. 694,373
Int. Cl. B44d 1/094, 1/12

U.S. Cl. 117-27

2 Claims
A method of depositing a polymeric material on the surface of a substrate by applying an aqueous suspension of a polymeric material to the substrate surface and simultaneously precipitating the said polymeric material and removing the water portion from the suspension with a water absorbing material.

3,574,663

PROCESS OF METALLIZING A CATHODE-RAY TUBE SCREEN

Lester E. Schniepp, Barrington, Ill., assignor to Zenith Radio Corporation

No Drawing. Filed Jan. 15, 1968, Ser. No. 697,609
Int. Cl. C03c 17/12

U.S. Cl. 117-35

6 Claims
The screen of a color cathode-ray tube having phosphor dots deposited by slurring techniques is provided with an organic film as a substrate over which an aluminum layer is applied. The film is formed by distributing over the screen a coating of a water-based emulsion of an organic film-forming compound mixed with an aqueous solution of a polymeric compound. The aqueous solution is miscible with the film-forming emulsion and the polymeric compound has a lower volatilizing temperature than the film-forming compound. Drying of this coating forms the film or substrate for the aluminum layer. In bakeout of the tube, the polymeric compound vaporizes first and creates voids or ruptures in the aluminum layer.

facilitating egress of gases generated by volatilization of the formed organic film.

Where the phosphor deposits of the screen are laid down by electrostatic deposition, the film or substrate for the aluminized layer is formed in two discrete processes. In the first, the screen is coated with a similar mixture of a water-based emulsion of an organic film-forming compound and an aqueous polymer solution but now with such concentration of the solution as to effect partial physical precipitation of resin solids contained in the film-forming compound to partially fill the interstices of the screen. After this coating has been dried, a second coating of the film-forming emulsion, with or without the polymer solution additives is applied and dried to present a smooth surface for receiving the layer of aluminum.

3,574,664 ROOM TEMPERATURE ELECTROLESS NICKEL PLATING BATH

Nathan Feldstein, Kendall Park, N.J., assignor to
RCA Corporation

Filed Oct. 26, 1967, Ser. No. 678,373

Int. Cl. B44d 11/092; C23c 3/02

U.S. Cl. 117-47

8 Claims

A process for depositing nickel onto a substrate from a room temperature electroless plating bath; the bath initially includes (i) a nickel salt, (ii) sodium hypophosphite, (iii) sodium pyrophosphate, and (iv) ammonium hydroxide.

The concentration of ammonium hydroxide is chosen so as to adjust the pH of the bath to an initial value (between 9.0 and 11.5) corresponding to the desired plating rate. A strong base such as sodium hydroxide is then added to increase the pH of the bath above the initial value without substantially affecting the plating rate.

In use, the pH of the bath decreases, but the plating rate remains relatively unaffected so long as the pH does not drop below the initial value set by the ammonium hydroxide. This permits wider tolerances in pH control of the bath and alleviates the need for adding an accurately controlled amount of hydroxyl ion when the bath is regenerated.

ERRATUM

For Class 117-62.1 see:
Patent No. 3,574,620

3,574,665 PROCESS FOR COATING FILAMENTS WITH A RESIN

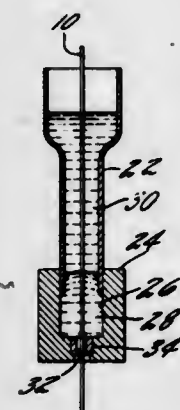
Malcolm Basche, West Hartford, Conn., assignor to
United Aircraft Corporation, East Hartford, Conn.

Filed Aug. 12, 1968, Ser. No. 752,080

Int. Cl. B05c 3/12, 11/02; B44d 1/06

U.S. Cl. 117-64

4 Claims



A process for providing a moving substrate with a smooth and uniform overcoat of resin by passing a fila-

ment successively through a liquid resin and liquid mercury, the mercury acting both as a wiper and as a supporting sealant for the resin.

3,574,666 CERAMIC COATED METAL ARTICLES AND PROCESS THEREFOR

Howard F. Smalley and Anthony A. Mazzuca, Baltimore, Md., assignors to The Glidden Company, Cleveland, Ohio

No Drawing. Filed Sept. 8, 1967, Ser. No. 666,495

Int. Cl. B32b 15/18

U.S. Cl. 117-70

3 Claims

Porcelain enamel coated metal articles resistant to chalking when exposed to water and alkaline materials at temperatures above about 150° F. and methods for producing these articles have been discovered and are described. A novel, clear, virtually unpigmented, vitreous, solution-resistant glass composition is also described. The articles comprise a metal body or ground coated metal body having on at least one surface thereof a continuous base coat of a pigmented porcelain enamel composition and a second coat of the novel, virtually unpigmented, vitreous, clear glass composition. The coatings resist chalking which occurs when conventional porcelain enamel coated articles are exposed to water and alkaline or acid materials at temperatures above 150° F. One embodiment of a coated article is a chalk-resistant liner for automatic dishwashers wherein conventional porcelain enamel coated liners undergo chalking under ordinary use conditions.

3,574,667 THERMOPLASTIC ADHESIVE SHEET

Albert A. Fournier, Martinsville, N.J., assignor to
Johnson & Johnson

Filed Jan. 5, 1968, Ser. No. 695,938

Int. Cl. C09j 7/04

U.S. Cl. 117-76

6 Claims



An iron-on adhesive sheet comprising a flexible backing sheet, and a normally non-tacky layer of a thermoplastic adhesive applied to one major surface of said backing. The adhesive comprises about 100 parts of a relatively low softening point, relatively low molecular weight polar vinyl chloride copolymer, about 40-80 parts of a monomeric plasticizer for said copolymer, about 30-50 parts of relatively high softening point, unfused relatively high molecular weight vinyl chloride polymer particles, and about 40-60 parts of a polymeric plasticizer for said high molecular weight polymer. Preferably, a vinyl barrier layer is applied between the backing sheet fabric and the adhesive layer.

3,574,668 METHOD OF FORMING A RESIN COATED, PAPER- BOARD PRODUCT AND RESULTANT ARTICLE

Jerome Alfred Cherney, Appleton, Wis., assignor to
American Can Company, New York, N.Y.

Filed May 3, 1968, Ser. No. 726,395

Int. Cl. B44d 1/44; B32b 29/00

U.S. Cl. 117-64

5 Claims

A flexible fibrous sheet material, preferably paperboard is coated with a suitable liquid impervious coating such as polyethylene and the coating is cast by a chill roll hav-

ing a surface which imparts a uniformly low friction character and a commercially acceptable gloss surface to the coating. Containers made from such sheet mate-



rial are first printed and then coated with such liquid impervious coating to provide a printed container with a uniform coefficient of friction.

3,574,669 NONBLOCKING COATED SHEET MATERIAL

Arthur Ruthven Chase, Neenah, Wis., assignor to
American Can Company, New York, N.Y.

No Drawing. Filed July 22, 1968, Ser. No. 746,241

Int. Cl. B32b 23/08

U.S. Cl. 117-76

1 Claim

A flexible packaging sheet material bearing a tacky wax composition coating and a nonblocking overcoating of a polyamide.

3,574,670 METHOD OF COATING A SUCTION BOX COVER WITH AN ORGANODISILOXANE

James W. Curry, Dallas, Tex., assignor to Texas Instru-
ments Incorporated, Dallas, Tex.

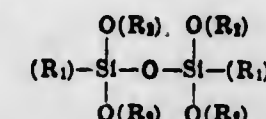
No Drawing. Filed July 12, 1968, Ser. No. 744,329

Int. Cl. B05c 8/04, 8/00

U.S. Cl. 117-99

3 Claims

New organodisiloxane compounds represented by the structural formula:



where R₁ is an alkyl radical having between 11 and 30 carbon atoms and R₂ is a radical selected from the group consisting of: methyl, ethyl, propyl and isopropyl radicals. A method for applying the disiloxane compounds to suction box covers includes the steps of distributing an organic solvent having the organodisiloxane dissolved therein over the suction box cover and evaporating the solvent.

3,574,671 METHOD FOR COATING METAL POWDERS

Thomas S. Cloran, East Liverpool, Ohio, assignor to
Crucible Steel Corporation, Pittsburgh, Pa.

No Drawing. Filed Nov. 20, 1968, Ser. No. 777,495

Int. Cl. B22f 1/00

U.S. Cl. 117-100

5 Claims

This invention relates to a method for preparing metal powders for compacting by powder metallurgy techniques. In particular it relates to an arrangement for uniformly coating the powder with an element, such as a carbon-containing material, for example lampblack, prior to compacting. This is achieved by agitating a charge of metal powder containing water while increasing the temperature of the powder to vaporize at least a portion of the water. In this manner the water is substantially evenly dispersed throughout the powdered metal. A quantity of the element to be coated on the powder is added in finely divided form and the powdered metal and element are further agitated in the presence of the water vapor, which causes the element to be substantially uniformly coated over and throughout the powder.

3,574,672 CVD PROCESS FOR PRODUCING TUNGSTEN CAR- BIDE AND ARTICLE OF MANUFACTURE

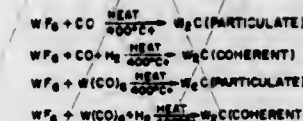
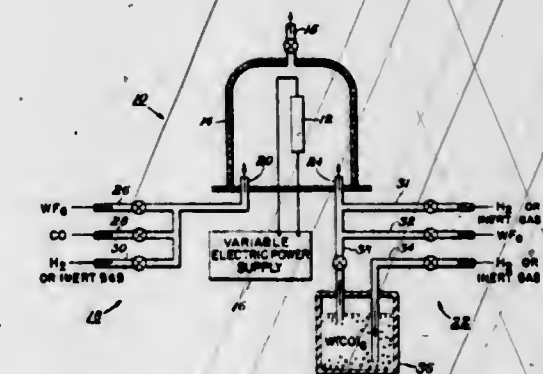
Donald A. Tarver, Richardson, Tex., assignor to Texas
Instruments Incorporated, Dallas, Tex.

Original application Aug. 5, 1964, Ser. No. 387,613, now
Patent No. 3,389,977. Divided and this application Apr.
24, 1968, Ser. No. 761,354

Int. Cl. C23c 13/04

U.S. Cl. 117-106

7 Claims



Disclosed is a process for depositing a metal carbide in the form X₂C where X is taken from the group consisting of tungsten, molybdenum and chromium by heating a substrate to a temperature between about 400° C. and about 1300° C. and passing a reactant stream comprising a halide of the metal and carbon monoxide at about atmospheric pressure, or greater, over the substrate. The addition of hydrogen to the reactants results in a coherent mass of the carbide. A coherent layer of the carbide may be adherently deposited on a substrate such as steel by first passing a reactant stream comprising a halide of the metal X and hydrogen as a reducing agent over the heated substrate to deposit a thin layer of the metal X, then adding the carbon monoxide to the reactant stream to produce the metal carbide. The halide of the metal X is preferably a hexafluoride of the metal X and the carbon monoxide is preferably provided by the carbonyl of the metal X.

ERRATA

For Classes 117-106 and 117-107 see:
Patent Nos. 3,574,649 and 3,574,650

3,574,673 COATED CUTTING EDGES

Carl W. Schweiger, Coleman, Mich., assignor to Dow
Corning Corporation, Midland, Mich.

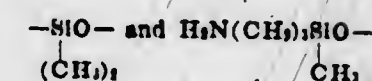
No Drawing. Continuation-in-part of application Ser. No.
798,770, Feb. 12, 1969. This application Apr. 24, 1969,
Ser. No. 819,123

Int. Cl. B32b 15/08

U.S. Cl. 117-132

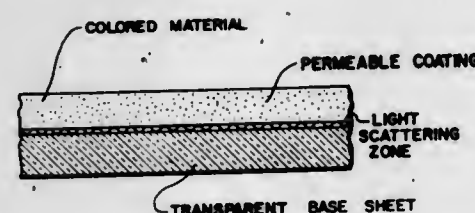
7 Claims

Articles having fine cutting edges, such as razor blades, the edges of which are coated with copolymers of methylsiloxane and aminoalkylsiloxane units, such as



to reduce the cutting force necessary to utilize the article.

3,574,674
COPY SHEET FOR USE IN REPRODUCTION OF IMAGES FROM PRINTED SURFACES
 William P. Taylor, Hamilton, Ohio, assignor to U.S. Plywood-Champion Papers Inc., Hamilton, Ohio
 Filed May 1, 1967, Ser. No. 635,182
 Int. Cl. B41m 5/00; B32h 27/08, 27/24
 U.S. Cl. 117—138.8 11 Claims

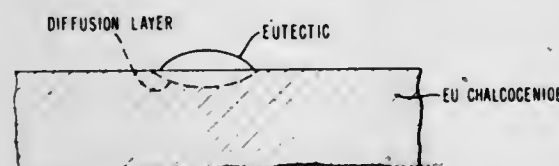


A copy sheet for reproducing an original printed sheet by moisture diffusion in the absence of special heat, light and electricity. The copy sheet having an impermeable transparent base and a moisture permeable, colored surface layer which when moistened and applied to the printed sheet for several seconds reproduces the printed image on the copy sheet in contrastingly visible color, readable from its transparent base side. The copy sheet being produced by forming a moisture permeable, thermoplastic surface layer containing a combined dye or pigment on a transparent impermeable base sheet.

3,574,675
METHOD OF AFFIXING OHMIC CONTACTS TO FERROMAGNETIC SEMICONDUCTOR BODIES
 Frederic Holtzberg, Pound Ridge, N.Y., assignor to International Business Machines Corporation, Armonk, N.Y.
 Filed Sept. 19, 1968, Ser. No. 760,866
 Int. Cl. C23f 17/00; C23c 13/02; C07f 11/00
 U.S. Cl. 117—201 22 Claims

Good ohmic contacts are affixed to the surfaces of rare earth chalcogenide ferromagnetic semiconductors by vapor depositing a 1:1 metallic compound which is a component of the chalcogenide crystals onto the surface of the crystal. As an example, where the chalcogenide crystal has the general formula $Ln_{1-x}Ln'_xA$, $Ln'A$ is vapor deposited on the crystal. The deposited compound is heated to cause it to partially diffuse into the semiconductor, and a conducting lead is soldered to the remaining ohmic dot.

3,574,676
OHMIC CONTACTS ON RARE EARTH CHALCOGENIDES
 Richard J. Gambino, Yorktown Heights, and Stephen von Molnar, Ossining, N.Y., assignors to International Business Machines Corporation, Armonk, N.Y.
 Filed Sept. 19, 1968, Ser. No. 760,900
 Int. Cl. C23f 17/00; C23c 13/02; C07f 11/00
 U.S. Cl. 117—201 13 Claims

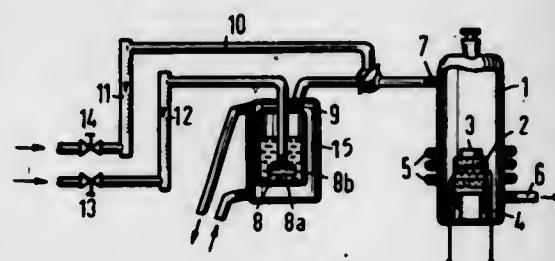


Good ohmic contacts are made to rare earth chalcogenide crystals. A low melting point alloy is prepared

from rare earth elements and at least one conductive metal. The alloy is melted on the surface of the crystal and conductive leads attached thereto by soldering with an indium solder.

3,574,677
METHOD OF PRODUCING A PROTECTIVE LAYER FROM A SEMICONDUCTOR NITROGEN COMPOUND FOR SEMICONDUCTOR PURPOSES
 Erich Pammer and Horst Panholzer, Munich, Germany, assignors to Siemens Aktiengesellschaft, Berlin, Germany
 Filed Apr. 28, 1967, Ser. No. 634,614
 Claims priority, application Germany, May 2, 1966, S 103,522
 Int. Cl. B44d 1/02, 1/18 7 Claims

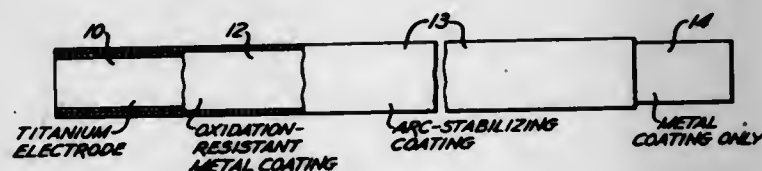
U.S. Cl. 117—201



A method of producing a protective layer at the surface of a semiconductor crystal. Organic silicon nitrogen compounds are pyrolytically (thermally) precipitated from gaseous phase to form silicon nitride on the semiconductor.

3,574,678
TITANIUM WELDING ELECTRODE
 Louis E. Stark, Youngstown, Ohio, assignor to Reactive Metals, Inc.
 Filed Mar. 7, 1969, Ser. No. 805,253
 Int. Cl. B23k 35/00 6 Claims

U.S. Cl. 117—204

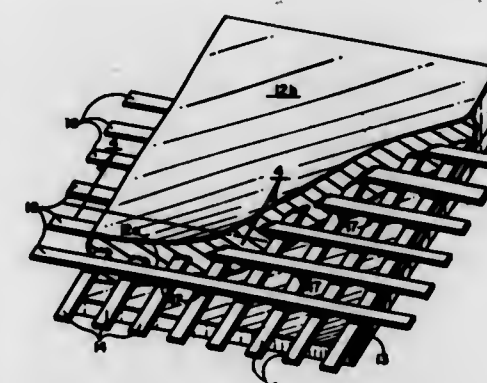


Titanium electrode which has a metal coating, preferably formed by dipping the electrode in a molten aluminum bath. This coating prevents the electrode from oxidizing during a welding operation. The electrode also has an arc-stabilizing coating of a halide salt. By use of this electrode, titanium bodies can be welded manually and the weld remains visible to the welder.

3,574,679
PROCESS FOR EMBEDDING OR ENCIRCLING POLYCRYSTALLINE MATERIALS IN SINGLE CRYSTAL MATERIAL
 George R. Pulliam and John L. Archer, Anaheim, Calif., assignors to North American Rockwell Corporation
 Filed Jan. 25, 1965, Ser. No. 427,804
 Int. Cl. C23c 11/08 5 Claims

U.S. Cl. 117—212
 A process for encircling a polycrystalline body in single crystal material. A single crystal seed is placed in a reactor adjacent the polycrystalline body. Chemical vapor

deposition is used to deposit epitaxially a single crystal material on the seed, growth being continued until the deposit builds onto and at least partially surrounds the body. The rate of deposition is controlled so that poly-



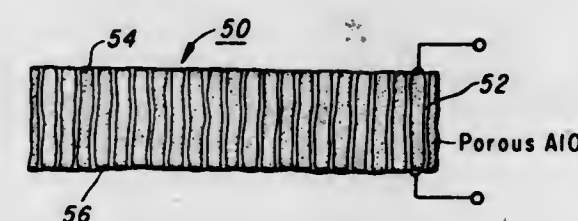
crystalline growth at nucleation sites on the polycrystalline body does not occur. In an exemplary embodiment, epitaxially grown monocrystalline ferrite embeds polycrystalline metallic conductors to form a structure useful as a magnetic memory.

3,574,680
HIGH-LOW OHMIC CONTACT DEPOSITION METHOD
 John A. Perri and Jacob Riseman, Poughkeepsie, N.Y., assignors to International Business Machines Corporation, Armonk, N.Y.
 No Drawing. Filed May 7, 1968, Ser. No. 727,342
 Int. Cl. C23c 11/02; H01k 7/00 16 Claims

U.S. Cl. 117—212
 A method of forming an ohmic contact upon an area to be contacted upon a substrate, such as an active area upon a semiconductor device, comprising the steps of depositing from the vapor phase a metal to be deposited, while said area is maintained at a first temperature at which good adhesion between said area and said metal occurs; then completing the deposition at a second lower temperature, for a time during which no contact-impairing reactions may occur between said metal and said area; then cooling the area. Examples of given materials and temperatures are included.

3,574,681
ALUMINUM OXIDE HUMIDITY SENSOR
 Olin B. Cecil, Richardson, Tex., assignor to Texas Instruments Incorporated, Dallas, Tex.
 Original application Mar. 31, 1966, Ser. No. 539,134, now Patent No. 3,440,372, dated Apr. 22, 1969. Divided and this application Oct. 9, 1968, Ser. No. 798,233
 Int. Cl. H01c 13/00; H01h 29/00 3 Claims

U.S. Cl. 117—213



An aluminum oxide humidity sensor is fabricated by a sequence of steps beginning with the anodization of an

aluminum body to form a surface layer of dense aluminum oxide on the aluminum body and a layer of porous aluminum oxide on the dense layer. The porous aluminum oxide is then separated from the dense aluminum oxide, and an electrode is formed on each of the opposite faces of the aluminum oxide, at least one of the electrodes being pervious to water vapor.

3,574,682
ELECTROSTATIC RECORDING MATERIALS
 Satoru Honjo and Yoji Tsuneoka, both of 210 Nakanuma, Minami-Ashigara-machi, Ashigara-Kamigun, Kanagawa, Japan
 No Drawing. Filed Apr. 11, 1968, Ser. No. 720,443
 Claims priority, application Japan, Apr. 12, 1967, 42/23,300
 Int. Cl. G03c 1/82 3 Claims

U.S. Cl. 117—215
 An electrostatic recording material comprising a nonconductive support having thereon a member selected from the group consisting of a photoconductive insulating layer or an electro-insulating layer, characterized in that a layer having a low electric resistance comprising a member selected from the group consisting of polyvinylbenzene sulfonic acid and a water-soluble salt thereof is interposed therebetween.

3,574,683
PREPARATION OF MAGNETIC PARTICLES BY REACTING IRON, COBALT, OR NICKEL SALTS WITH PHTHALATE ION IN DIALKYL SULFOXIDE
 Harold Kenneth Johnston II, Northglenn, Colo., assignor to International Business Machines Corporation, Armonk, N.Y.
 No Drawing. Filed Jan. 14, 1969, Ser. No. 793,196
 Int. Cl. H01f 10/00; C22b 23/04 12 Claims

U.S. Cl. 117—235
 A method for preparing finely divided magnetic metal particles by dissolving a metal salt of nickel, cobalt, iron, or mixtures of these in a dialkyl sulfoxide bath, preferably dimethyl sulfoxide; reacting with phthalate ion in said bath; precipitating the metal phthalate reaction product by adding water to the bath; separating the precipitate; heating and reducing with hydrogen at elevated temperatures to produce metallic particles of cubic structure in a fine particle size range of about .01 micron to about 7 microns, which are useful in magnetic recording media and for preparing permanent magnets, magnetic cores, and magnetically responsive fluid compositions as are employed in magnetic clutches and the like. Precipitation of the metal phthalate is not achieved if aqueous solutions of metal salt and phthalate ion are mixed and dialkyl sulfoxide is added thereafter.

3,574,684
POLYURETHANE MAGNETIC COATING COMPOSITION
 Louis M. Higashi, San Jose, Calif., assignor to Memorex Corporation, Santa Clara, Calif.
 No Drawing. Filed May 26, 1965, Ser. No. 459,074
 The portion of the term of the patent subsequent to Nov. 19, 1985, has been disclaimed
 Int. Cl. H01f 10/02 4 Claims

U.S. Cl. 117—237
 A polyurethane magnetic coating composition for recording tape comprising a magnetic pigment in a thermosetting binder made from a low molecular weight diol, a high molecular weight polyester diol having a molecular weight between 10,000 and 30,000 and a triisocyanate.

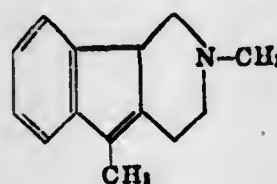
3,574,685
MANUFACTURE OF MAGNETIC PARTICLES BY REACTING IRON, COBALT, OR NICKEL SALTS WITH OXALIC ACID SALTS IN DIALKYL SULFOXIDE

Robert S. Haines, Boulder, Colo., assignor to International Business Machines Corporation, Armonk, N.Y.
 No Drawing. Filed Jan. 14, 1969, Ser. No. 791,162
 Int. Cl. H01f 10/02

U.S. Cl. 117-240 3 Claims
 This invention relates to the preparation of high coercivity, finely divided acicular magnetic metal, alloy, or oxide particles by precipitation of oxalates of iron, nickel, cobalt, or mixtures of these metal oxalates from a bath containing dialkyl sulfoxide, preferably dimethyl sulfoxide. Oxalic acid or a soluble salt of oxalic acid which provides oxalate ions in solution is reacted with a soluble metal salt of iron, nickel, or cobalt dissolved in the bath. Precipitation is caused by the addition of water to the dialkyl sulfoxide bath. After separating and drying, the precipitate is decomposed, either by heat alone or by reduction with a reducing gas, at elevated temperatures to produce metal particles which are oblong in shape and which vary in size from about 0.1 micron to 1.0 micron.

3,574,686
2,5-DIMETHYL-1,3,4,9B-TETRAHYDRO-2H-INDENO[1,2-c]PYRIDINE AND SALTS THEREOF
 Ernst Jucker, Ettingen, Anton Ebnöther, Arlesheim, and Jean-Michel Bastian, Birsfelden, Switzerland, assignors to Sandoz Ltd. (also known as Sandoz AG), Basel, Switzerland
 No Drawing. Filed May 13, 1969, Ser. No. 824,274
 Claims priority, application Switzerland, May 21, 1968, 7,561/68; Nov. 27, 1968, 17,652/68
 Int. Cl. C07d 39/00

U.S. Cl. 260-293 1 Claim
 The invention concerns 2,5-dimethyl-1,3,4,9b-tetrahydro-2H-indeno[1,2-c]pyridine of the formula:



and acid addition salts thereof. Processes for the production of the above compounds are also described.

The compounds are useful sedative-neuroleptics, and also possess useful antidepressant and analgetic properties.

3,574,687
ION EXCHANGE RECOVERY OF OXAZOLE FROM NITRILE COMPOSITIONS AND REGENERATION OF THE RESIN

Claude Darcas and Claude Tchekawsky, Saint-Avoid, France, assignors to Uguine Kuhlmann
 No Drawing. Original application May 23, 1967, Ser. No. 640,492. Divided and this application Aug. 8, 1969, Ser. No. 870,758
 Int. Cl. C07d 85/44, 85/22; C07c 121/32

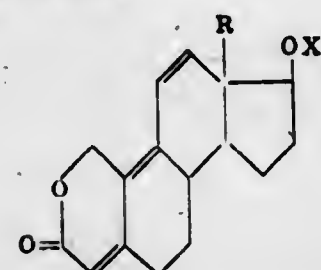
U.S. Cl. 260-307 4 Claims
 This disclosure describes a procedure for the removal of oxazole and like compounds from the partially purified reaction product of the vapor phase catalytic reaction between an ethylenic hydrocarbon such as propylene with ammonia and air. The removal is effected by contacting the nitrile composition with a cationic ion exchange resin in the acid form. The disclosure also describes the regeneration of cationic ion exchange resins partially or totally saturated with weakly basic materials by contact with deionized water.

3,574,688
UNSATURATED 2-OXA STEROID DERIVATIVES AND PROCESS FOR THEIR PREPARATION

Robert Bucourt and Lucien Nedelec, Clichy-sous-Bois, France, assignors to Roussel-UCLAF, Paris, France
 No Drawing. Continuation-in-part of abandoned applications Ser. No. 603,094, Dec. 20, 1966, and Ser. No. 603,457, Dec. 21, 1966. This application May 14, 1968, Ser. No. 728,880

Claims priority, application France, Mar. 22, 1966, 54,503; Oct. 11, 1966, 79,512; Aug. 11, 1967, 117,736; 117,737; Aug. 17, 1967, 118,091; Nov. 3, 1967, 126,899; Jan. 23, 1968, 137,029
 Int. Cl. C07d 7/26

U.S. Cl. 260-343.2 15 Claims
 This invention relates to novel unsaturated 2-oxa steroid derivatives of the formula



wherein R is alkyl having from 1 to 6 carbon atoms, X is selected from the group consisting of hydrogen, alkyl having from 1 to 5 carbon atoms, alkenyl having from 3 to 5 carbon atoms, cycloalkyl having from 5 to 7 carbon atoms, aralkyl having from 7 to 11 carbon atoms, cycloalkylalkyl having from 4 to 11 carbon atoms, alkylthioalkyl having from 2 to 5 carbon atoms, alkoxyalkyl having from 2 to 5 carbon atoms, and the acyl of an organic carboxylic acid having from 1 to 18 carbon atoms, as well as the process of preparing the same. These compounds have an anabolic action coupled with an androgenic action.

3,574,689
6,1'-SPIROCYCLOPROPYL PROGESTERONES AND PROCESSES

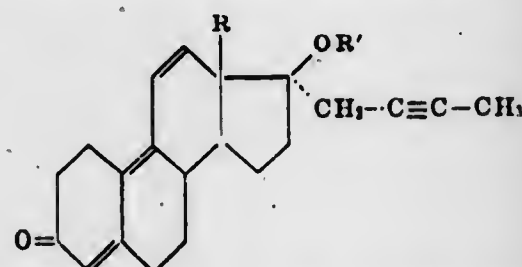
Norman A. Nelson, Galesburg, Mich., assignor to The Upjohn Company, Kalamazoo, Mich.
 No Drawing. Filed Mar. 24, 1965, Ser. No. 442,513
 Int. Cl. C07c 169/34

U.S. Cl. 260-397.4 17 Claims
 This disclosure relates to 6,1'-spirocyclopropylprogesterones, intermediates and processes for their production. The compounds are of value for their progestational and anti-inflammatory activity.

3,574,690
Δ^{4,9,11}-GONATRIENE-3-ONES
 André Pierdet, Nolsy-le-Sec, and Georges Muller, Nogent-sur-Marne, France, assignors to Roussel-UCLAF, Paris, France

No Drawing. Filed Nov. 13, 1968, Ser. No. 775,546
 Claims priority, application France, Nov. 17, 1967, 128,724

U.S. Cl. 260-397.45 3 Claims
 Δ^{4,9,11}-Gonatriene-3-ones of the formula



wherein R is alkyl of 1 to 3 carbon atoms and R' is selected from the group consisting of hydrogen and an acyl

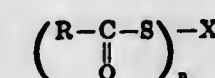
radical of 1 to 18 carbon atoms and novel process and intermediates therefor, the said products having progestomimetic and hypophysial inhibiting activity.

3,574,691
PREPARATION OF FACTICE-LIKE PRODUCTS
 Gerhard Stolpa, Hilden, Rhineland, and Guntram Walther, Dusseldorf-Eller, Germany, assignors to Henkel & Cie GmbH, Dusseldorf, Hothausen, Germany
 No Drawing. Filed Jan. 16, 1968, Ser. No. 698,112
 Claims priority, application Germany, Feb. 25, 1967, H 61,958

U.S. Cl. 260-399 7 Claims
 This invention relates to a process for the production of factice-like products which comprises reacting (1) an anhydrous polyunsaturated compound selected from the group consisting of (a) an ester of an alkanepolyol with an acid selected from the group consisting of unsaturated fatty acids having 8 to 22 carbon atoms, unsaturated hydroxy fatty acids having 8 to 22 carbon atoms, resin acids and mixtures of the said acids, and (b) an oxidized polymer of said ester with (2) an anhydrous mixture of disulfurdichloride and a phosphorus halide, and recovering said factice-like products. The invention also relates to the factice-like products so produced which are useful in the same manner as factice.

3,574,692
STABILIZED HALOGEN CONTAINING POLYMERS
 Walter Stamm, Tarrytown, N.Y., assignor to Stauffer Chemical Company, New York, N.Y.
 No Drawing. Application Jan. 12, 1967, Ser. No. 608,751, which is a continuation-in-part of application Ser. No. 586,045, Oct. 12, 1966. Divided and this application Aug. 2, 1968, Ser. No. 763,463

U.S. Cl. 260-399 6 Claims
 Novel compounds useful as stabilizers for halogen containing polymers such as polyvinyl chloride are represented by the formula:

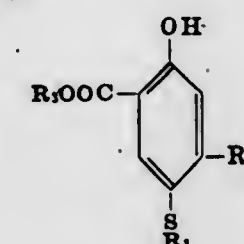


wherein R is a hydrocarbyl group, n is an integer having a value of from 1 to 2, and X is selected from the group consisting of hydrogen, alkali metal, alkaline earth metal, and acryl moieties having a hydrocarbyl residue.

3,574,693
ALKYLTHIO SUBSTITUTED HYDROXYBENZOIC ACIDS AND ORGANOTIN SALTS THEREOF

Charles H. Fuchsman, Cleveland Heights, and William H. Meek, Northfield, Ohio, assignors to Ferro Corporation, Cleveland, Ohio
 No Drawing. Continuation-in-part of application Ser. No. 768,878, Oct. 18, 1968. This application Oct. 24, 1969, Ser. No. 869,358

U.S. Cl. 260-429.7 6 Claims
 Int. Cl. A01n 9/12; C07c 149/40; C07f 7/22



wherein R₂ is H or methyl, R₁ is an alkyl of from 1 to 12 carbon atoms, or aralkyl of from 7 to 12 carbon atoms, R₃ is H or Sn[(CH₂)_nH]₂ wherein z is an integer of

from 2 to 3 inclusive, n is an integer of from 1 to 8 inclusive, and provided that both R₁ and R₃ are not both H. The compounds are useful as bacteriostats and fungistats.

3,574,694
PREPARATION OF BETA-CHLORO ISOCYANATES
 James L. Harper, Laurel, and David A. Daniels, Baltimore, Md., assignors to W. R. Grace & Co., New York, N.Y.
 No Drawing. Filed Jan. 17, 1968, Ser. No. 698,415

U.S. Cl. 260-453 4 Claims
 The ethylenically unsaturated group of an organic compound is converted to a beta-chloro isocyanato group by the use of Cl₂ and isocyanic acid in the presence of an iodoaryl compound.

3,574,695
TWO-STAGE PHOSGENATION PROCESS FOR PRODUCING ORGANIC ISOCYANATES
 Brenton R. Grant, Jr., Wilmington, and Carl F. Irwin, New Castle, Del., assignors to E. I. du Pont de Nemours and Company, Wilmington, Del.
 Filed Apr. 11, 1968, Ser. No. 720,630

U.S. Cl. 260-453 6 Claims
 In continuous processes for phosgenating organic amines in inert solvents to form isocyanates, hydrochloride persistence and hold times are minimized by continuously contacting in a secondary reaction zone the reaction product from a primary reaction zone with at least 0.75 mole of phosgene per equivalent of organic amine fed to the primary reaction zone, said secondary zone providing an average liquid residence time of about 5 to 45 minutes at at least 130° C., and continuously removing from the secondary zone a gaseous mixture of phosgene and by-product hydrogen chloride and a solution of organic isocyanate.

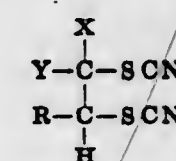
3,574,696
ACETYLENIC DIPERESTERS
 Ronald L. Friedman, San Rafael, and Roger N. Lewis, Pinole, Calif., assignors to Argus Chemical Corporation, San Rafael, Calif.

No Drawing. Continuation-in-part of application Ser. No. 511,354, Dec. 3, 1965. This application Aug. 1, 1968, Ser. No. 749,339
 The portion of the term of the patent subsequent to May 13, 1986, has been disclaimed

U.S. Cl. 260-453 9 Claims
 Aliphatic diperesters of alkyne diols useful as polymerization initiators.

3,574,697
HALOALKYLENE BISTHIOCYANATES
 Richard Parke Welcher, Old Greenwich, Conn., assignor to American Cyanamid Company, Stamford, Conn.
 No Drawing. Filed May 27, 1968, Ser. No. 732,049

U.S. Cl. 260-454 10 Claims
 Haloalkylene bisthiocyanates of the formula



cycloaliphatic bis-thiocyanates in which R and Y represent the residue of a cycloaliphatic ring of from 5 to 10 carbon atoms are prepared by reacting thiocyanogen with the corresponding halo-olefins. The new haloalkylene bithiocyanates are highly active bactericides, fungicides and algicides and are effective in alkaline waters as well as under neutral and acid conditions.

3,574,698

PREPARATION OF SALTS OF 2-MERCAPTOETHYLAMINES AND THEIR S-ACYL ANALOGS

Stanley J. Brois, Cranford, and Harry W. Barnum, Elizabeth, N.J., assignors to Esso Research and Engineering Company

No Drawing. Filed July 19, 1967, Ser. No. 654,368

Int. Cl. C07c 153/07

U.S. Cl. 260—455

10 Claims

S-acyl-2-mercaptoethylamine salts are formed by reacting an aziridine compound with a thiol carboxylic acid and a strong acid at low temperatures. Preferably, the reaction is conducted in the presence of a polar organic diluent. Salts of the 2-mercaptoethylamines can be prepared from their S-acyl analogs through the use of an alcoholysis or hydrolysis reaction.

3,574,699

PROCESS FOR THE PREPARATION OF DIVINYL CARBONATES

David Rhum, Westfield, and George L. Moore, South Plainfield, N.J., assignors to Air Reduction Company, Incorporated, New York, N.Y.

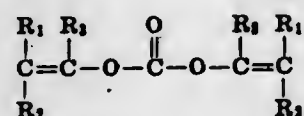
No Drawing. Filed Nov. 1, 1966, Ser. No. 591,094

Int. Cl. C07c 69/00; C08g 17/13

U.S. Cl. 260—463

3 Claims

Vinyl monomers of the formula:



wherein R₁, R₂ and R₃ are hydrogen or alkyl, are produced by reacting phosgene with a mercury compound of the appropriate aldehyde or ketone, suitably in the presence of a tertiary amine.

3,574,700

PROCESS FOR PREPARING DINITRILES

Robert T. Somich, Lake Jackson, Tex., assignor to Monsanto Company, St. Louis, Mo.

No Drawing. Filed June 12, 1968, Ser. No. 736,299

Int. Cl. C07c 121/10

U.S. Cl. 260—465.2

6 Claims

Boron phosphate containing minor amounts of sulfate and/or sodium-containing salts provides an improved dehydration catalyst for the synthesis of nitriles from carboxylic compounds or derivatives thereof and ammonia.

3,574,701

PROCESS FOR PRODUCING ETHYLENICALLY UNSATURATED ALIPHATIC NITRILES

Naoya Kominami, Tokyo, Hitoshi Nakajima, Urawa-shi, and Nobuhiko Tamura, Tokyo, Japan, assignors to Asahi Kasei Kogyo Kabushiki Kaisha, Asaka, Japan

No Drawing. Continuation-in-part of application Ser. No. 489,750, Sept. 23, 1965. This application May 6, 1969, Ser. No. 822,300

Claims priority, application Japan, Oct. 15, 1964, 39/58,344

Int. Cl. C07c 121/04

U.S. Cl. 260—465.3

5 Claims

Process for producing ethylenically unsaturated aliphatic nitriles of acrylonitrile, methacrylonitrile, crotonitrile, 1-cyano-butene-1, 2-cyano-butene-1, 2-cyano-butene-2

and 1-cyano-2-methyl-propene-1, by reacting an olefinic hydrocarbon containing 2 to 4 carbon atoms i.e. ethylene, propylene, normal butylene and isobutylene with hydrogen cyanide and oxygen or a molecular oxygen containing gas in the gaseous phase in the presence of a catalyst selected from the group consisting of the oxides of rhodium selected from the group consisting of RhO, Rh₂O₃, RhO₂ and RhO₃; the hydroxides of palladium and rhodium selected from the group consisting of Pd(OH)₂, Pd(OH)₄, Rh(OH)₃ and Rh(OH)₄; the chlorides of palladium and rhodium selected from the group consisting of PdCl, PdCl₂, PdCl₃, PdCl₄, RhCl₂ and RhCl₃; the bromides of palladium and rhodium selected from the group consisting of PdBr₂ and RhBr₃; the nitrates of palladium and rhodium selected from the group consisting of Pd(NO₃)₂ and Rh(NO₃)₃; Pd(CN)₂ and Pd(OCOCH₃)₂, at a temperature of 200° C.

3,574,702

PROCESS FOR DIMERIZING ACRYLONITRILE COMPOUNDS

Julian Feldman and Bernard A. Saffer, Cincinnati, Ohio, assignors to National Distillers and Chemical Corporation, New York, N.Y.

No Drawing. Continuation-in-part of application Ser. No. 271,463, Apr. 8, 1963. This application Mar. 2, 1965, Ser. No. 436,648

Int. Cl. C07c 121/20

U.S. Cl. 260—465.8

8 Claims

2-methyleneglutaronitrile is prepared via tertiary phosphine catalyzed dimerization of acrylonitrile.

3,574,703

SYNTHESIS OF ALPHA,BETA-UNSATURATED NITRILES

Hugh J. Hagemeyer, Jr., Alden E. Blood, and Thomas C. Snapp, Jr., Longview, Tex., assignors to Eastman Kodak Company, Rochester, N.Y.

Filed Oct. 23, 1967, Ser. No. 677,393

Int. Cl. C07c 121/30, 121/32

U.S. Cl. 260—465.9

5 Claims

Alpha,beta-unsaturated aldehydes, ketones, nitriles and esters are formed by the vapor phase condensation of saturated aldehydes, ketones, nitriles and alkyl esters of aliphatic monocarboxylic acids with formaldehyde in the presence of an unmodified silica gel catalyst. The activity and effectiveness of the catalysts is a function of their pore volume and surface area. The use of the silica gel catalyst systems give improved conversions and yields of unsaturated product and is accompanied by retention of catalyst activity at a high level.

3,574,704

N(α-NAPHTHYL)AMINOALIPHATIC ACIDS

Volkert Claassen, Weesp, Hendricus Obias Hulsman, Amstelveen, and Gerardus Henricus Maria Mos, Weesp, Netherlands, assignors to U.S. Philips Corporation, New York, N.Y.

No Drawing. Application Nov. 30, 1966, Ser. No. 597,892, now Patent No. 3,472,938, dated Oct. 14, 1969, which is a continuation-in-part of application Ser. No. 486,224, Sept. 9, 1965. Divided and this application Mar. 19, 1968, Ser. No. 723,972

Int. Cl. C07c 101/44

U.S. Cl. 260—471

18 Claims

N(α-naphthyl) aminoaliphatic acids and lower esters thereof are disclosed. The naphthyl group may be substituted by halogen, alkyl or alkoxy radicals. Examples of the compounds are N(6-methoxy-α-naphthyl)-3-amino-propionic acid, N(α-naphthyl)-2,2-dimethyl - 3 - amino-propionic acid and N-(6-methoxy-α-naphthyl)-3-methyl-

3 aminopropionic ethylester. The compounds exhibit tranquilizer activities. This abstract is in no way intended to be a description of the invention defined by the claims.

3,574,705

PREPARATION OF UNSATURATED ESTERS OF CARBOXYLIC ACIDS

Gustave B. Linden, Short Hills, N.J., and Walter Brooks, Whittier, Calif., assignors to Allied Chemical Corporation, New York, N.Y.

No Drawing. Filed Aug. 30, 1967, Ser. No. 664,275

Int. Cl. C07c 69/60, 69/80, 69/82

U.S. Cl. 260—475

9 Claims

Allylic esters of organic carboxylic acids are prepared by heating an alkali metal salt of an organic carboxylic acid with an allylic halide at a temperature of 55° to 80° C. in the presence of a zinc promoted copper catalyst.

3,574,706

PROCESS FOR THE PREPARATION OF ESTERS OF DICARBOXYLIC ACIDS

Guidoaldo Cevidalli, Seveso, and Giuseppe Caprara and Giorgio Montorsi, Milan, Italy, assignors to Montecatini Edison S.p.A., Milan, Italy

No Drawing. Filed Mar. 6, 1968, Ser. No. 710,743

Claims priority, application Italy, Mar. 7, 1967, 13,447/67

Int. Cl. C07c 69/44, 69/50, 69/80

U.S. Cl. 260—475

8 Claims

Process for the preparation of esters of dicarboxylic acids (especially maleic acid, adipic acid, pimelic acid, sebacic acid and phthalic acids), wherein the alkali-metal salt of the acid is reacted at 120° to 190° C. in suspension with a secondary alkyl halide having 4 to 15 carbon atoms in the presence of a catalyst consisting essentially of pyridine, sodium or potassium iodide and an organic catalysis promoter (e.g., phenol, hydroquinone, chlorobenzene, nitrobenzene, chlorophenol, cresol, dimethylaniline) or monoesters of dicarboxylic acids (e.g., as formed in a previous reaction system).

3,574,707

BENZOIC ACID ESTERS OF MONOHYDROALKYL-CARBORANES

Salyid M. Naqvi, Dover, Martin J. Socha, Wayne, and Marvin M. Fein, Westfield, N.J., assignors to Thiokol Chemical Corporation, Bristol, Pa.

No Drawing. Original application Sept. 17, 1964, Ser. No. 397,292, now Patent No. 3,409,663. Divided and this application July 1, 1968, Ser. No. 752,427

Int. Cl. C07c 69/76, 69/84

U.S. Cl. 260—476

2 Claims

Benzoic acid esters of monohydroxy-alkylcarboranes in which the alkyl group has from 1 to 8 carbon atoms. The esters have utility as ultraviolet light absorbants.

3,574,708

BISPHENOL FORMATES

Keisuke Murayama, Sjoji Morimura, and Hideo Horiuchi, Tokyo, Japan, assignors to Sankyo Company Limited, Tokyo, Japan

No Drawing. Filed Oct. 19, 1967, Ser. No. 676,621

Claims priority, application Japan, Oct. 27, 1966, 41/709,000

Int. Cl. C07c 69/06

U.S. Cl. 260—479

5 Claims

Bisphenol formate derivatives which are useful as stabilizers against the photo- and/or thermal-deterioration of various polymers, such as polyolefins, polyacetals,

3,574,709

CARBAMYL THIOETHERS

Alfred Froehlich, Marly-le-Grand, Switzerland, assignor to Ciba Limited, Basel, Switzerland

No Drawing. Filed Oct. 18, 1967, Ser. No. 676,031

Claims priority, application Switzerland, Oct. 27, 1966, 15,582/66

Int. Cl. C07c 127/22, 149/20

U.S. Cl. 260—481

7 Claims

The present invention provides new thioethers which are suitable for sensitizing photographic material containing a silver halide.

3,574,710

CARBAMATES CONTAINING NF₂ GROUPS

James E. Coleman, Edison, Lawrence J. Engel, Dunellen, and Ferdinand Cataneo, Cranford, N.J., assignors to Esso Research and Engineering Company

No Drawing. Filed June 3, 1963, Ser. No. 286,108

Int. Cl. C07c 125/04

U.S. Cl. 260—482

16 Claims

1. A carbamate of an energetic alcohol containing oxidizing groups of the class consisting of —NF₂ and —NO₂ as substituents of a hydrocarbon moiety in the alcohol and a tris(NF₂)methyl radical linked through a carbamate ester linkage to said hydrocarbon moiety of the alcohol in substitution for a hydroxyl function of the alcohol.

9. The process for preparing a carbamate of an energetic alcohol containing oxidizing groups consisting of NF₂ and NO₂ as substituents which comprises reacting tris(NF₂)methyl isocyanate with the energetic alcohol to form the carbamate and recovering the resulting carbamate.

3,574,711

PRODUCTION OF ALKYL CARBAMATES

Max O. Robeson, Salisbury, N.C., assignor to Proctor Chemical Company, Inc., Salisbury, N.C.

No Drawing. Filed May 14, 1968, Ser. No. 728,916

Int. Cl. C07c 103/12

U.S. Cl. 260—482

7 Claims

Use of zinc compounds as catalysts greatly increase product yield, reduce reaction time and provide further improvements over known methods of producing alkyl carbamates by reaction of an alkanol with urea. Zinc oxide is most effective as the catalyst and permits a product yield of above 90% in production of n-butyl carbamate from butanol and urea. The products may be reacted with formaldehyde to form methylol derivatives that are effective as textile crease-proofing agents.

3,574,712

PREPARATION OF ESTERS

Herman S. Bloch, Skokie, and Louis Schmerling, Riverside, Ill., assignors to Universal Oil Products Company, Des Plaines, Ill.

No Drawing. Filed Dec. 11, 1967, Ser. No. 689,263

Int. Cl. C07c 69/14, 69/50, 69/82

U.S. Cl. 260—485

10 Claims

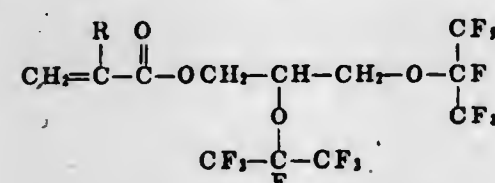
Esters of carboxylic acids are prepared in a cyclic process by reacting a saturated hydrocarbon and the corresponding alkyl metaborate with an oxygen-containing gas to form a dialkyl borate which is then divided into two equal portions. One portion is treated with carboxylic acid and water to yield the desired ester and an aqueous solution of boric acid. This boric acid is then heated with

the second portion of the dialkyl borate to form the alkyl metaborate which is recycled to the first step of the process.

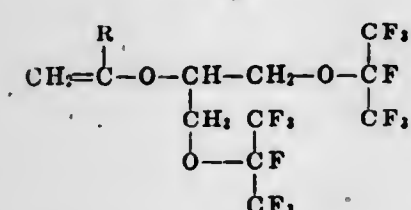
3,574,713 FLUORINATED ACRYLIC AND METHACRYLIC ESTERS

Allen G. Pittman, El Cerrito, and William L. Wasley, Berkeley, Calif., assignors to the United States of America as represented by the Secretary of Agriculture. No Drawing. Original application June 7, 1966, Ser. No. 555,703, now Patent No. 3,418,449. Divided and this application May 23, 1969, Ser. No. 827,163. Int. Cl. C07c 69/54

U.S. Cl. 260-486 9 Claims
The process for preparing compounds having the formulae



and

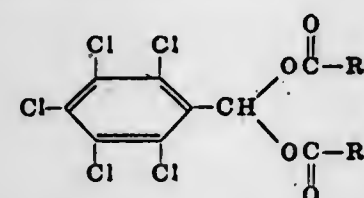


by reacting alkali metal fluoride with hexafluoro acetone and subsequently adding 2,3 dihalo-n propyl ester of acrylic or methacrylic acid, and stirring the reaction mixture at temperatures of 70° to 100° C.

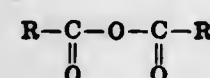
3,574,714 α,α-DIACYLOXY-2,3,4,5,6-PENTACHLORO- TOLUENE DERIVATIVES

Akira Fujinami, Takarazuka-shi, Katsuji Nodera, Nishinomiya-shi, Yoshihiko Nishizawa, Nara-shi, and Toshiaki Ozaki and Sigeo Yamamoto, Toyonaka-shi, and Toshiyuki Wakatsuki, Kyoto, Japan, assignors to Sumitomo Chemical Company, Ltd., Osaka, Japan. No Drawing. Filed Feb. 5, 1968, Ser. No. 702,813. Claims priority, application Japan, Feb. 22, 1967, 42/11,629; Mar. 1, 1967, 42/13,330. Int. Cl. C07c 69/62; A01n 9/24

U.S. Cl. 260-487 5 Claims
A novel α,α-diacyloxy-2,3,4,5,6-pentachlorotoluene derivative represented by the formula,



wherein R is a lower alkyl group, a lower alkenyl group or a halogen-substituted-lower alkyl group, is prepared by reacting pentachlorobenzaldehyde with an acid anhydride represented by the formula,



wherein R has the same meanings as identified above.

Typical examples of the groups represented by R are methyl, chloromethyl, ethyl and n-propyl.

The compounds thus obtained have an excellent fungicidal activity, very low toxicity to fish and warm blooded animals and have no phototoxicity on crops.

3,574,715 UNSATURATED CARBONYL COMPOUND

Roman Marbet, Riehen, Switzerland, and Gabriel Saucy, Essex Fells, N.J., assignors to Givaudan Corporation, Clifton, N.J. No Drawing. Application Sept. 5, 1968, Ser. No. 757,798, which is a division of application Ser. No. 319,980, Oct. 30, 1963, which in turn is a continuation-in-part of application Ser. No. 290,960, June 27, 1963. Divided and this application Nov. 26, 1969, Ser. No. 877,582. Int. Cl. C07c 69/14

U.S. Cl. 260-488 1 Claim
Derivatives of 1-penten-3-al which are useful as odorants in perfume compositions.

3,574,716 HYDROGENATION OF ALDEHYDES AND KETONES

Robert Stevenson Coffey, Norton-on-Tees, England, assignor to Imperial Chemical Industries Limited, London, England. No Drawing. Continuation-in-part of application Ser. No. 555,215, June 6, 1966. This application July 2, 1968, Ser. No. 741,859. Claims priority, application Great Britain, June 11, 1965, 24,771/65. Int. Cl. C07c 29/14, 67/00

U.S. Cl. 260-494 11 Claims
Olefinic or acetylenic compounds, aldehydes or ketones are hydrogenated by hydrogen in the presence of an iridium complex of formula IrHY_2L_n , in which Y is hydrogen or an anionic element or group such as carboxylate, L is a ligand such as a trialkyl or aryl phosphine, and n is 2 or 3.

3,574,717 PROCESS FOR THE PRODUCTION OF UNSATURATED ORGANIC COMPOUNDS

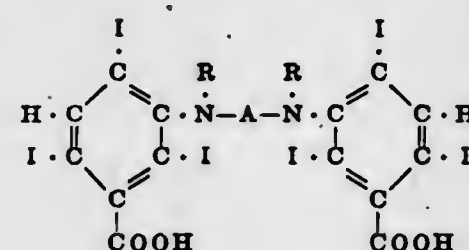
John Edward Lloyd, Norton-on-Tees, England, assignor to Imperial Chemical Industries Limited, London, England. No Drawing. Filed Mar. 27, 1967, Ser. No. 625,948. Claims priority, application Great Britain, Apr. 7, 1966, 15,653/66. Int. Cl. C07c 67/04

U.S. Cl. 260-497 12 Claims
Allene and substituted allenes react with certain specified nucleophiles including carboxylic acids, alcohols, water and hydrogen cyanide in the presence of a Group VIII noble metal salt catalyst, e.g., palladium acetate to give allyl and isopropenyl derivatives. The reaction may be carried out in the presence of a redox system such as a copper salt which may optionally be regenerated by means of molecular oxygen.

3,574,718 METHOD FOR PRODUCING X-RAY CONTRAST AGENTS

Lars Björk, Uno E. Erikson, Björn G.-A. Ingelman, and Bernt J. Lindberg, Uppsala, Sweden, assignors to Pharmacia AB, Uppsala, Sweden. No Drawing. Filed Dec. 11, 1967, Ser. No. 689,282. Claims priority, application Sweden, Dec. 13, 1966, 17,052. Int. Cl. C07c 101/48, 103/32

U.S. Cl. 260-501.11 22 Claims
Iodine compounds of the formula:



wherein R is a lower acyl group having no more than 5 carbon atoms and wherein A is an alkylene group substituted by at least one substituent of the formula $-\text{O}-\text{R}_1$ wherein R_1 is a hydrogen or a lower alkyl or a lower acyl group having no more than 5 carbon atoms, said alkylene group containing from 3 to 15 inclusive carbon atoms and being optionally broken by one or more oxygen bridges; or physiologically acceptable salts thereof; and their method of preparation are provided. These compounds are especially useful as X-ray contrast agents.

3,574,719 HALOALKYL PHOSPHINIC ACIDS AND THEIR APPLICATION TO COTTON

Leon H. Chance and Ethel K. Leonard, New Orleans, and George L. Drake, Jr., Metairie, La., assignors to the United States of America as represented by the Secretary of Agriculture. No Drawing. Original application May 3, 1967, Ser. No. 635,680, now Patent No. 3,484,184. Divided and this application Jan. 24, 1969, Ser. No. 823,206. Int. Cl. C07f 9/30; D06m 13/28

U.S. Cl. 260-502.4 2 Claims
Bis(chloromethyl)phosphinic acid is prepared by a new method; other phosphinic acids are prepared by reacting certain ketones with hypophosphorus acid; and new cellulosic derivatives are prepared by crosslinking fibrous cellulose with these phosphorus containing compounds.

3,574,720 ALKYLATED CYCLE OIL AND THE SULFONATE DERIVED THEREFROM

Albert N. De Vault, Bartlesville, Okla., assignor to Phillips Petroleum Company. Filed July 12, 1965, Ser. No. 471,045. Int. Cl. C07c 143/24; C10m 1/40

U.S. Cl. 260-505 5 Claims
A light cycle oil having a boiling range of about 400 to 675° F. is contacted with an alkylation catalyst under alkylation conditions so as to produce a product containing alkylation aromatics produced by alkylating the aromatics present in the cycle oil with the olefins also present in the cycle oil. The alkylate, particularly after hydrogen treating, is useful as a motor grade lubricating oil and as a general purpose lubricating oil or non-staining rubber extender oil and when sulfonated with a sulfonating agent and neutralized with a basic metal compound provides a superior lubricating oil additive.

3,574,721 PREPARATION OF ANTIFIBRINOLYTICALLY ACTIVE ISOMER OF 4-AMINOMETHYL- CYCLOHEXANE CARBOXYLIC ACID

Bengt Olof Melander and Gunnar Hanshoff, Stockholm, Bengt Ragnar Gustaf Granstrand, Vallentuna, and Berit Margareta Olsson, Trångsund, Sweden, assignors to AB Kabi, Stockholm, Sweden. No Drawing. Filed Dec. 9, 1964, Ser. No. 417,235. Int. Cl. C07c 101/04

U.S. Cl. 260-514 4 Claims
Disclosed and claimed is the preparation of the 4-aminomethyl-cyclohexane carboxylic acid isomer assaying at least about 90% antifibrinolytically active material from specific para-disubstituted cyclohexane starting material. For example, in 4-aminomethyl-cyclohexane methanol such as its isomer melting at 118° C. in a series of steps its methanol group is converted to carboxyl. More specifically its amino group is blocked by reaction with benzoyl halide and the methanol group then oxidized to carboxyl, and the benzoyl group removed to yield the end product isomer.

1,4-dimethyl-cyclohexane dicarboxylate melting at 69-71° C., another such cyclohexane starting material, is hydrolyzed to its mono-ester which with thionyl halide is converted to the halide of the half-ester, which latter reacted with ammonia gives the corresponding ester amide. The latter is heated with thionyl halide and converted to methyl 4-cyano-cyclohexane carboxylate which then is hydrolyzed to yield 4-cyano-cyclohexane carboxylic acid which catalytically reduced using a compatible reduction catalyst such as Raney nickel is converted to the 4-aminomethyl-cyclohexane carboxylic acid end product.

3,574,722 CARBOXYLATION OF AROMATIC COMPOUNDS

James J. Louvar, Evanston, Ill., assignor to Universal Oil Products Company, Des Plaines, Ill. No Drawing. Filed Mar. 20, 1968, Ser. No. 714,430. Int. Cl. C07c 63/04, 101/54

U.S. Cl. 260-515 10 Claims
Aromatic compounds may be carboxylated by treating the compound with a solution of boron trifluoride in a carboxylic acid to form carboxylated aromatic compounds.

3,574,723 CARBOXYLATION OF AROMATIC ACTING COMPOUNDS

James J. Louvar, Evanston, Ill., assignor to Universal Oil Products Company, Des Plaines, Ill. No Drawing. Filed Mar. 20, 1968, Ser. No. 714,443. Int. Cl. C07c 63/04, 101/54, 101/56

U.S. Cl. 260-515 10 Claims
Aromatic acting compounds may be carboxylated by treating the compound with a carboxylic acid in the presence of a catalyst comprising a phosphorus-containing acid, a mineral acid or a Friedel-Crafts metal halide to form the desired carboxylated compounds.

3,574,724 NITROBENZYL SULFUR ACIDS AND PREPARATION THEREOF

Wilhelm Wenner, Upper Montclair, and Milan Radoje Uskokovic, Montclair, N.J., assignors to Hoffmann-La Roche Inc., Nutley, N.J. No Drawing. Application Mar. 21, 1966, Ser. No. 535,722, which is a continuation-in-part of application Ser. No. 445,264, Apr. 2, 1965, which in turn is a continuation-in-part of application Ser. No. 266,030, Mar. 18, 1963. Divided and this application May 10, 1968, Ser. No. 738,759. Int. Cl. C07c 79/46, 149/30

U.S. Cl. 260-515 6 Claims
Nitrobenzyl sulfur containing organic acids are intermediates in the preparation of pharmaceutically active 4,1-benzothiazepin-2(1H)-ones and 4,1-benzothiazepines having a basic side chain on the 1 nitrogen atom.

3,574,725 METHOD FOR PREPARING L-(+)-α-METHYL-β-(3,4-DIHYDROXYPHENYL)-ALANINE

Toshinori Kurano, Kanagawa-ken, and Mitsukazu Fukuda and Masahide Horuchi, Tokyo, Japan, assignors to Sankyo Chemical Industries Ltd. No Drawing. Filed Mar. 27, 1967, Ser. No. 625,967. Claims priority, application Japan, Aug. 11, 1966, 41/52,736; Feb. 21, 1967, 42/11,016. Int. Cl. C07c 101/08

U.S. Cl. 260-519 6 Claims
A process for obtaining substantially pure L-(+)-α-methyl-β-(3,4-dihydroxyphenyl)-alanine which comprises

seeding a saturated solution of DL-N-acyl- α -methyl- β -(3,4-methylenedioxyphenyl)-alanine with L-N-acyl- α -methyl- β -(3,4-methylenedioxyphenyl)-alanine to initiate crystallization thereof from said solution, recovering the crystallized laevo compound and deacylating and dealkylating the recovered, crystallized compound by hydrolysis in the presence of a phenol.

3,574,726

ESTER-ETHER INTERCHANGE REACTIONS
Walter Theodore Dent, Norton-on-Tees, England, assignor to Imperial Chemical Industries Limited, London, England

No Drawing. Filed Nov. 21, 1966, Ser. No. 595,594
Claims priority, application Great Britain, Nov. 24, 1965, 49,943/65

Int. Cl. C07c 65/06, 65/14

U.S. Cl. 260—520 9 Claims
A potassium salt of an ether of a para-hydroxy benzoic acid is produced by heating a potassium salt of an ester of an alcohol and para-hydroxy benzoic acid.

3,574,727

PURIFICATION OF TEREPHTHALIC ACID
Wallace E. Taylor and Enrique R. Witt, Corpus Christi, Tex., and Kwang Yuen Zee-Cheng, Kansas City, Mo., assignors to Celanese Corporation, New York, N.Y.

No Drawing. Filed Oct. 16, 1967, Ser. No. 675,289

Int. Cl. C07c 51/42

U.S. Cl. 260—525 9 Claims
A process for purifying crude terephthalic acid by dissolving the terephthalic acid in acetic anhydride and adding peracetic acid to oxidize at least one of the impurities present in solution.

3,574,728

PROCESS FOR PRODUCING SORBIC ACID
Itaru Takasu, Masaru Higuchi, and Yoshito Hijioka, Saitama, Japan, assignors to Daicel Ltd., Osaka, Japan

No Drawing. Filed Nov. 17, 1967, Ser. No. 683,786

Int. Cl. C07c 7/10

U.S. Cl. 260—526 8 Claims
A process for producing crotonaldehyde ketone addition compounds adapted for the production of sorbic acids and its salts which comprises reacting ketene with crotonaldehyde in the presence of a bivalent metal complex of acetylacetone in which the metal is a member selected from the group consisting of zinc, cadmium and manganese, said complex having no other group which inhibits the reaction of ketene and crotonaldehyde.

3,574,729

PRODUCTION OF UNSATURATED ALIPHATIC ACIDS
Edward James Gasson, Kingswood, England, assignor to The Distillers Company Limited, Edinburgh, Scotland

No Drawing. Filed Oct. 25, 1966, Ser. No. 589,245
Claims priority, application Great Britain, Nov. 10, 1965, 47,796/65

Int. Cl. C07c 57/04

U.S. Cl. 260—530 10 Claims
The production of acrylic and methacrylic acid by reacting acrolein and methacrolein, respectively, with oxygen at elevated temperatures in the presence of a primary oxide composition of antimony, molybdenum and vanadium with an additional oxide of an element of the group consisting of tin, nickel, chromium and titanium, said composition less molybdenum, having been heated in the presence of oxygen at 700 to 900° C. followed by the addition of molybdenum and heating at 500 to 900° C. in the presence of oxygen.

3,574,730

PRODUCTION OF ACETIC ACID
Clifford William Capp, Ewell, and Brian Walton Harris, Horley, England, assignors to BP Chemicals (U.K.) Limited, London, England

No Drawing. Filed Nov. 28, 1967, Ser. No. 686,283
Claims priority, application Great Britain, Dec. 20, 1966, 56,912/66

Int. Cl. C07c 53/08

U.S. Cl. 260—533 10 Claims
In a process for the production of acetic acid from ethylene, wastage of ethylene due to combustion to carbon oxides is obviated by use of a palladium metal/transition metal oxide or salt catalyst.

3,574,731

PROCESS FOR RECOVERING ALKYL CARBOXYLIC ACIDS
Roby Bearden, Jr., Baton Rouge, La., assignor to Esso Research and Engineering Company

No Drawing. Continuation-in-part of application Ser. No. 525,292, Feb. 7, 1966. This application Nov. 19, 1968, Ser. No. 777,195

Int. Cl. C07c 51/26, 51/32

U.S. Cl. 260—533 10 Claims
This invention relates to the recovery of C_4 through C_{30} alkyl carboxylic acids from a mixture of oxidation products which are formed by the reaction of an olefin with carbon monoxide and hydrogen in the presence of an oxonatic catalyst, i.e., cobalt, and thereafter oxidizing the oxonation product mixture with molecular oxygen to form the oxidation product mixture. The oxidation product mixture, containing carboxylic acids, oxides of said oxonation catalysts and oxidation by-products is reacted in a first stage with sulfur-dioxide in the presence of water to convert the oxides of said oxonation catalyst to water-soluble catalyst sulfates dissolved in an aqueous phase. Thereafter, the aqueous phase formed in the first stage is separated from the non-aqueous phase containing the carboxylic acids and the oxidation by-products, and the latter reacted with a dilute aqueous alkali, whereby the carboxylic acids are recovered as an aqueous solution of alkali carboxylates and the oxidation by-products separate as an alkali-insoluble phase.

3,574,732

WITHDRAWN

3,574,733

2-(HEXAFLUORO-2-HYDROXY-2-PROPYL)-ALKANOIC ACIDS AND PROCESS FOR PREPARING THEM
Everett E. Gilbert, Morristown, and James O. Peterson, Convent Station, N.J., assignors to Allied Chemical Corporation, New York, N.Y.

No Drawing. Filed Oct. 30, 1968, Ser. No. 772,050

Int. Cl. C07c 59/04, 65/02

U.S. Cl. 260—535 9 Claims
Reaction products of hexafluoroacetone and monocarboxylic or dicarboxylic alkanolic acids, useful as surface tension reducing agents, and their preparation by heating a mixture of hexafluoroacetone and the alkanolic acid at a temperature of at least about 150° C.

3,574,734

HYDROGENATION OF UNSATURATED CARBOXYLIC ACIDS
Geoffrey Colin Bond, London, England, assignor to Johnson, Matthey & Co. Limited, London, England

No Drawing. Filed July 7, 1967, Ser. No. 651,711
Claims priority, application Great Britain, July 12, 1966, 31,310/66

Int. Cl. C07c 51/36, 55/10

U.S. Cl. 260—537 9 Claims
Unsaturated carboxylic acids are hydrogenated in the presence of a water-soluble amino compound of rhodium.

3,574,735

PROCESS FOR THE MANUFACTURE OF UNSATURATED PHOSPHONIC ACID DICHLORIDES

Kurt Sennewald, Knapsack, near Cologne, Alexander Ohorodnik, Liblar, Dieter Klrstein, Cologne-Lindenthal, and Hans-Joachim Hardel, Bruhl-Vochem, Germany, assignors to Knapsack Aktiengesellschaft, Knapsack, near Cologne, Germany

No Drawing. Filed Dec. 6, 1967, Ser. No. 688,342
Claims priority, application Germany, Dec. 23, 1966, K 61,005

Int. Cl. C07f 9/42

U.S. Cl. 260—543 7 Claims
Production of unsaturated phosphonic acid dichlorides from halogeno-alkane phosphonic acid dichlorides containing a halogeno-alkane radical with 2 to 8 carbon atoms by thermal dehydrohalogenation and continuous distillative removal of resulting unsaturated phosphonic acid dichloride from reaction mixture, wherein the thermal dehydrohalogenation is carried out in the presence of triphenyl-phosphine as the catalyst.

3,574,736

METHOD FOR PREPARING HYDROXAMOYL CHLORIDES

Julius J. Fuchs, Forwood, Wilmington, Del., assignor to E. I. du Pont de Nemours and Company, Wilmington, Del.

No Drawing. Filed Dec. 16, 1966, Ser. No. 602,125

Int. Cl. C07c 131/00

U.S. Cl. 260—566 10 Claims
Chlorination of aldoximes, such as acetaldoxime, in 1% to 13% aqueous solutions and at a temperature of 25° C. to -15° C. to obtain the corresponding hydroxamoyl chlorides.

3,574,737

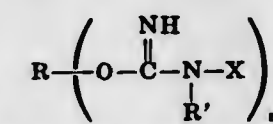
IMINOCARBAMIC ACID ESTER DERIVATIVES
Ernst Grigat, Cologne-Stammheim, and Rolf Pütter, Dusseldorf, Germany, assignors to Farbenfabriken Bayer Aktiengesellschaft, Leverkusen, Germany

No Drawing. Filed Nov. 27, 1964, Ser. No. 414,412

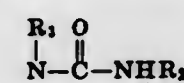
Claims priority, application Germany, Dec. 3, 1963, F 41,454; Jan. 16, 1964, F 41,756; Apr. 28, 1964, F 42,737

Int. Cl. A01n 9/20; C07c 119/00, 133/02

U.S. Cl. 260—554 23 Claims
Iminocarbamic and iminocarbamic acid esters of the formula



where R and R' are organo radicals, X is hydroxyl, amino, substituted amino or



where R₂ and R₃ are organo radicals, and n is an integer of 1 to 6, which esters are useful as herbicides and fungicides.

3,574,738

PROCESS OF SYNTHESIZING UREA
Ivo Mavrovic, 530 E. 72nd St., New York, N.Y. 10021

Filed Dec. 26, 1968, Ser. No. 787,059

Int. Cl. C07c 127/00

U.S. Cl. 260—555 4 Claims
Corrosion of stainless steel equipment used for the synthesis of urea from ammonia and carbon dioxide is substantially prevented by dissolving oxygen or air in the liquid ammonia feed prior to its introduction into the reactor. Urea synthesis is effected under specific reaction conditions such as operation with a specific ratio of oxygen, ammonia, and water to carbon dioxide as well as

under specific temperature and pressure conditions whereby a high conversion rate is achieved and the resulting urea product is of low turbidity and low iron content.

3,574,739

ALKOXYBENZENESULFONAMIDES
Peter H. L. Wei, Upper Darby, Stanley C. Bell, Penn Valley, and Scott J. Childress, Philadelphia, Pa., assignors to American Home Products Corporation, New York, N.Y.

No Drawing. Continuation-in-part of application Ser. No. 522,050, Jan. 21, 1966. This application Apr. 25, 1968, Ser. No. 724,247

Int. Cl. C07c 143/78

U.S. Cl. 260—556 7 Claims
N - (alkoxyalkylidene)alkoxybenzenesulfonamides (I) are provided by a process comprising treating an o-hydroxybenzenesulfonamide with a trialkyl orthoalkylate. Acid hydrolysis of (I) provides alkoxybenzenesulfonamides (II). Reaction of (II) with an alkyl halide provides N-(alkyl)alkoxybenzenesulfonamides (III). Compounds I, II, and III have pharmacological activity, especially as analgesics.

3,574,740

METHOD OF PREPARING METHANE SULFONAMIDE AND ITS DERIVATIVES

Le Roy Martin, Riverview, Mich., assignor to Pennwalt Corporation

No Drawing. Filed June 11, 1968, Ser. No. 735,989

Int. Cl. C07c 143/74

U.S. Cl. 260—556 7 Claims
Methane sulfonamide and its derivatives are prepared by reacting methane sulfonyl chloride with an amine, e.g., ammonia or a primary or secondary alkyl amine, in a nitroalkane as a reaction diluent, whereby the amine hydrochloride salt by-product precipitates and is easily separated from the sulfonamide product-nitroalkane solution at a moderately elevated temperature, such as by filtration or centrifugation. The sulfonamide product is separated from the nitroalkane by such means as crystallization, distillation, or extraction techniques.

3,574,741

SULFONAMIDOPHENALKYLAMINES

William A. Gould, deceased, late of Toronto, Ontario, Canada, by Barbara E. Gould, legal representative, and Aubrey A. Larsen, Evansville, Ind., assignors to Mead Johnson & Company, Evansville, Ind.

No Drawing. Continuation-in-part of application Ser. No. 507,664, Nov. 15, 1965. This application Apr. 14, 1969, Ser. No. 817,272

Int. Cl. C07c 143/74, 143/78

U.S. Cl. 260—556 14 Claims
Phenalkylamine compounds having both the hydroxyl and sulfonamido groups in the phenyl ring constitute a new class of highly active sympathomimetic agents.

3,574,742

AMINOALICYCLIC CARBOXYHYDRAZIDES

Milton Lapidus, Rosemont, Norman H. Grant, Wynnewood, and Harvey E. Alburn, West Chester, Pa., assignors to American Home Products Corporation, New York, N.Y.

No Drawing. Filed June 25, 1968, Ser. No. 739,624

Int. Cl. C07c 103/86

U.S. Cl. 260—557 2 Claims
Aminoalicyclic carboxyhydrazides are prepared by the reaction of an aminoalicyclic carboxylic acid anhydride with a hydrazine. The compounds have biochemical activity and are useful as immuno-suppressive agents.

3,574,743 N-ACYL DERIVATIVES OF 2-HYDROXY-PHENYLAMINES

Kelth Coupland, Hull, England, assignor to Distillers Chemicals and Plastics Limited, London, England
No Drawing. Filed Mar. 10, 1967, Ser. No. 622,045
Claims priority, application Great Britain, Apr. 6, 1966, 15,385/66

Int. Cl. C07c 103/30

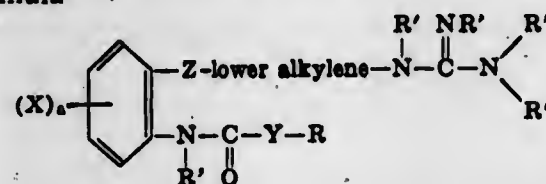
U.S. Cl. 260—558 10 Claims
N-acyl derivatives of 2-hydroxyphenylamines are produced from the corresponding disubstituted catechols and are useful as lubricant additives.

3,574,744 GUANIDINOALKYL DERIVATIVES OF SUBSTITUTED ANILIDES

John Krapcho, Somerset, and Jack Bernstein, New Brunswick, N.J., assignors to E. R. Squibb & Sons, Inc., New York, N.Y.
No Drawing. Continuation-in-part of application Ser. No. 466,841, June 24, 1965. This application Oct. 26, 1967, Ser. No. 678,201

Int. Cl. C07c 103/30

U.S. Cl. 260—558 10 Claims
This invention relates to new compounds of the general formula



and to their acid addition salts and quaternary ammonium salts, compounds which have anti-serotonin activity and antimicrobial activity.

3,574,745 CHLOROPHENOXYACETAMIDE HERBICIDES AND PREPARATION THEREOF

Edwin D. Little, Convent Station, N.J., assignor to Allied Chemical Corporation, New York, N.Y.
No Drawing. Filed Aug. 27, 1968, Ser. No. 755,747

Int. Cl. C07c 103/30

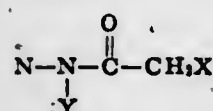
U.S. Cl. 260—559 7 Claims
N-(2-chloroethyl)-chlorophenoxyacetamides are prepared by condensing 2-oxazolidone with a di- or tri-chlorophenoxyacetyl chloride at a pH less than about 7.0. The compounds are useful as herbicides.

3,574,746 N-(CYCLOALKEN-1-YL) ALPHA-HALOACETAMIDES

John P. Chupp, Kirkwood, Mo., assignor to Monsanto Company, St. Louis, Mo.
No Drawing. Continuation-in-part of application Ser. No. 523,870, Feb. 1, 1966. This application June 5, 1967, Ser. No. 644,760

Int. Cl. C07c 103/34

U.S. Cl. 260—561 24 Claims
Compounds of the formula



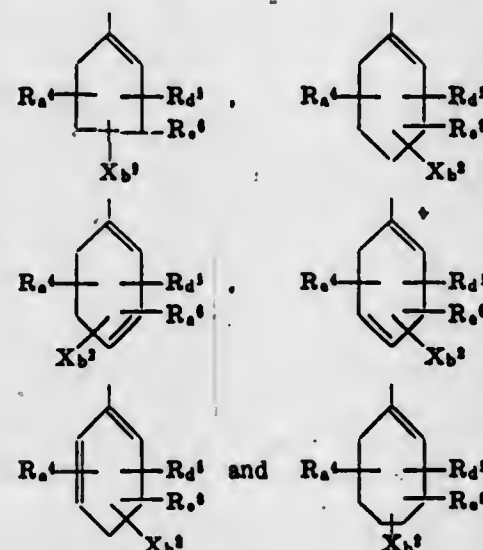
wherein X is halogen (Cl, Br, F and I); Z is selected from the group consisting of

- (I) hydrogen,
- (II) X_nR — wherein R is hydrocarbyl of not more than 18 carbon atoms selected from the group consisting of alkyl, alkenyl and alkynyl, X^1 is halogen (Cl, Br, F and I) and n is an integer from 0 to 3 inclusive,

(III) cycloalkyl, alkylcycloalkyl and alkoxyalkyl of at least 3 and not more than 8 ring carbon atoms, and not more than 12 chain carbon atoms,

(IV) $R^1O(R^2O)_mR^3$ wherein R^1 is selected from the group consisting of alkylene and alkoxyalkylene of not more than 8 carbon atoms, R^2 is alkylene of not more than 4 carbon atoms, R^3 is selected from the group consisting of alkyl and alkenyl of not more than 4 carbon atoms and m is an integer from 0 to 1, and

(V) aryl, aralkyl and alkaryl of not more than 18 carbon atoms; and Y is cycloalkenyl of at least 5 and not more than 7 carbon atoms in the ring selected from the group consisting of



wherein R^4 is alkyl of not more than 4 carbon atoms, R^5 is alkoxy of not more than 4 carbon atoms, R^6 is phenyl, X^1 is halogen (Cl, Br, F and I), a, b and d are each integers from 0 to 3 inclusive and e is an integer from 0 to 1.

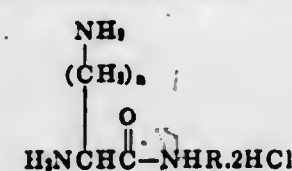
Utility as plant growth regulators.

3,574,747 AMIDES OF DIAMINOACIDS

George S. Denning, Jr., Norwich, N.Y., assignor to The Norwich Pharmacal Company
No Drawing. Filed Mar. 29, 1968, Ser. No. 717,388

Int. Cl. C07c 103/50

U.S. Cl. 260—561 12 Claims
New amides of diaminoacids of the formula:



wherein R is a higher alkyl ($C_{12}-C_{18}$) group and n is 2-4 possess a broad antibacterial spectrum for topical application.

3,574,748 β -ALKOXY-ACRYLIC ACID AMIDES

Dietmar Mayer, Leverkusen, Klaus Sasse, Cologne-Stammheim, and Ingeborg Hammann, Cologne, Germany, assignors to Farbenfabriken Bayer Aktiengesellschaft, Leverkusen, Germany
No Drawing. Filed Mar. 24, 1969, Ser. No. 810,024
Claims priority, application Germany, Mar. 25, 1968, P 17 68 041.0

Int. Cl. C07c 103/30

U.S. Cl. 260—561 10 Claims
 β -Alkoxy-acrylic acid amides, i.e. β -(alkoxy, cycloalkoxy, alkyl-cycloalkoxy and alkyl-cycloalkyl-alkoxy) acrylic acid N-(alkyl, alkenyl, cycloalkyl, alkyl-cycloalkyl, phenyl-alkyl and chloro-phenyl-alkyl)-N-(unsubstituted and optionally alkyl, alkenyl, cycloalkyl and phenyl-

alkyl)-amides, which possess pesticidal, especially insecticidal and acaricidal, properties and which may be produced by reacting the corresponding β -alkoxy-acrylic acid chloride with the appropriate amine.

3,574,749 1-(4-AMIDOPHENOXY)-3-AMINO-2-PROPANOL DERIVATIVES

Ralph Howe and Leslie Harold Smith, Macclesfield, England, assignors to Imperial Chemical Industries Limited, London, England

No Drawing. Filed Oct. 23, 1967, Ser. No. 677,027
Claims priority, application Great Britain, Nov. 3, 1966, 49,369/66

Int. Cl. C07c 103/30

U.S. Cl. 260—562 4 Claims

The disclosure relates to 1-acylamino-3-amino-2-propanol derivatives, processes for their manufacture and pharmaceutical compositions containing them. The said compounds possess β -adrenergic blocking activity and are useful in the treatment of heart diseases. Representative of the compounds disclosed is 1-(2-allyloxy-4-propionamidophenoxy)-3-isopropylamino-2-propanol.

3,574,750 PROCESS FOR THE PRODUCTION OF CYCLOHEXANONE OXIME

Etzo Yasui, Takeo Kawaguchi, and Takashi Matsubara, Nagoya-shi, Japan, assignors to Toa Gosei Chemical Industry Co. Ltd., Tokyo, Japan

No Drawing. Filed Feb. 27, 1967, Ser. No. 619,027
Claims priority, application Japan, Feb. 26, 1966, 41/11,322

Int. Cl. C07c 131/04

U.S. Cl. 260—566 5 Claims

A process for producing cyclohexanone oxime by the oxidation of cyclohexanone in the presence of ammonia and hydrogen peroxide using as a catalyst tungstic acid, isopolytungstic acid, heteropolytungstic acid, or a salt thereof. The oxidation is conducted in the presence of a sulfate, preferably at normal pressure and at a temperature of from 5-50° C. using water as the medium to promote the reaction. The yield of cyclohexanone oxime is about 95%.

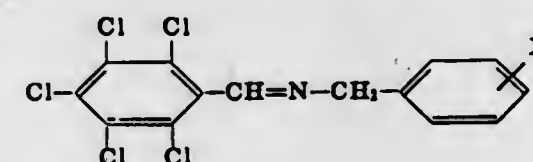
3,574,751 2,3,4,5,6-PENTACHLOROBENZYLIDENAMINE DERIVATIVES

Toshiaki Ozaki and Sigeo Yamamoto, Toyonaka-shi, Toshiyuki Wakatsuki, Kyoto, Akira Fujinami, Takarazuka-shi, Katsuji Nodera, Nishinomiya-shi, and Yoshihiko Nishizawa, Nara-shi, Japan, assignors to Sumitomo Chemical Company, Ltd., Osaka, Japan

No Drawing. Filed Dec. 18, 1967, Ser. No. 691,235
Claims priority, application Japan, Jan. 17, 1967, 42/3,529

Int. Cl. C07c 119/00

U.S. Cl. 260—566 8 Claims
2,3,4,5,6-pentachlorobenzylidenamine derivatives as novel agricultural fungicides, particularly chemicals suitable for control of rice blast, which have the structural formula,



wherein X is a hydrogen atom, a lower alkyl group, a halogen atom or a nitro group and n is 1 or 2.

3,574,752 5-(2-ALKYLAMINOETHYLIDENE)-10,11-DI-HYDRO- AND- 5H-DIBENZO[a,d]CYCLOHEPTENES AND THE SALTS THEREOF

Edward L. Engelhardt, Gwynedd Valley, Pa., assignor to Merck & Co., Inc., Rahway, N.J.

No Drawing. Filed Aug. 21, 1967, Ser. No. 661,783

Int. Cl. C07c 87/28

U.S. Cl. 260—570.8 7 Claims
This application relates to secondary aminoethylidene derivatives of 5H-dibenzo[a,d]cycloheptenes and the corresponding 10,11-dihydro derivatives. The compounds of this invention are useful as antiarrhythmic agents as well as local anesthetic agents. They are prepared by reaction of a selected 5-(2-bromoethylidene)-5H-dibenzo[a,d]cycloheptene or the corresponding 10,11-dihydro derivative with a primary amine such as methylamine, ethylamine, and the like, to form the product directly.

3,574,753

PREPARATION OF ALLYL DIFLUOROAMINE
Richard P. Rhodes, Newark, and Anthony J. Passanante, Metuchen, N.J., assignors to Esso Research and Engineering Company

No Drawing. Filed May 11, 1960, Ser. No. 28,494

Int. Cl. C07c 85/00, 87/26

U.S. Cl. 260—583 1 Claim

Allyl difluoroamine is selectively prepared by reacting propylene with tetrafluorohydrazine in the gas phase at elevated temperatures, preferably at a temperature in the range of from about 250° to about 380° C. The allyl difluoroamine compounds prepared in accordance with the instant process are excellent oxidizing agents for fuels used in rocket propellants.

3,574,754

CONTINUOUS PROCESS FOR PRODUCTION OF PRIMARY AMINES

Gerald A. Specken, % Chemcell, Ltd., P.O. Box 99, Edmonton, Alberta, Canada

Filed Nov. 15, 1967, Ser. No. 683,361

Int. Cl. C07c 85/12

U.S. Cl. 260—583 7 Claims

A process for the hydrogenation of nitriles for obtaining high yield of primary amines where only a fraction of the hydrogen is delivered at a time. The hydrogen is fed as continuous flows. Each flow is introduced along the reaction zone generally at regular intervals.

3,574,755

HIGH PURITY OLEFIN OXIDE ADDUCTS OF ALKYL AND ALKENYL AMINES

Robert B. McConnell and Robert A. Swenson, Janesville, Wis., assignors to Northern Petrochemical Company, Omaha, Nebr.

No Drawing. Filed Oct. 14, 1968, Ser. No. 767,464

Int. Cl. C07c 91/12

U.S. Cl. 260—584 11 Claims

Disclosed are olefin oxide adducts of alkyl and alkenyl primary amines and olefin oxide adducts of alkyl and alkenyl trimethylene diamines. The amine is first reacted with about one to three moles of an olefin oxide containing at least three carbons to form an intermediate which is then reacted with ethylene oxide to form the desired products. The products are surface active agents characterized by light color and low amounts of nonamine impurities.

3,574,756

METHOD OF PREPARING ORGANIC NITRO COMPOUNDS

Desmond Sheehan, 13a Wakefield St., Hamden, Conn. 06517, and Anthony F. Velturo, 977 Ott Drive, Cheshire, Conn. 06410
No Drawing. Continuation-in-part of application Ser. No. 585,258, Oct. 10, 1966. This application Aug. 15, 1967, Ser. No. 664,232

Int. Cl. C07c 45/18, 49/26, 79/46

U.S. Cl. 260—586

6 Claims

A method of preparing cyclic nitroketones which comprises gradually adding acetyl nitrate to the enol acetate of the unnitrated cyclic ketone, whereby the amount of acetyl nitrate is kept at less than excess, based on the enol acetate of the ketone, in the reaction mixture over substantially the time required for the reaction to occur.

3,574,757

PROCESS FOR THE PREPARATION OF CYCLOHEXANONE

Richard E. Collier, Chester, Va., assignor to Allied Chemical Corporation, New York, N.Y.
No Drawing. Continuation-in-part of application Ser. No. 452,381, Apr. 30, 1965. This application Nov. 22, 1967, Ser. No. 664,947

Int. Cl. C07c 45/00

U.S. Cl. 260—586

8 Claims

More specifically, the invention relates to improving yields of cyclohexanone while reducing undesirable by-product formation in the production of cyclohexanone by hydrolytic cleavage of a bicyclic unsaturated ketone which can be 2-cyclohexylidenecyclohexanone or 2(1-cyclohexen-1-yl) cyclohexanone in the presence of caustic alkali, said improvement being effected by employing superheated steam and commencing the reaction with little or no water present in the starting mixture of bicyclic ketone and caustic alkali.

3,574,758

POLYNITROBENZOPHENONE

Kathryn G. Shipp, 9507 Bruce Drive 20901, and Lloyd A. Kaplan, 13609 Colefair Drive 20904, both of Silver Spring, Md.

No Drawing. Filed May 29, 1967, Ser. No. 644,434

Int. Cl. C07c 49/76, 49/80

U.S. Cl. 260—591

16 Claims

A polynitro-benzophenone having at least 4 nitro substituents and useful as a high energy explosive composition. A polynitro-diphenylmethane intermediate which may be oxidized to provide the aforesaid benzophenones. A process for preparing the aforesaid intermediate and the process for oxidizing the aforesaid intermediate to the benzophenone.

3,574,759

PERFLUORODICYANAMIDE AND METHOD

Simon Frank and Marion Douglas Meyers, Stamford, Conn., assignors to American Cyanamid Company, Stamford, Conn.

No Drawing. Filed May 11, 1962, Ser. No. 195,020

Int. Cl. C07c 87/22

U.S. Cl. 260—583

10 Claims

1. Perfluorodicyanamide.
2. The method of preparing fluorinated compounds including perfluorodicyanamide which comprises contacting finely divided zinc dicyanamide with a mixture of gaseous fluorine and an inert carrier gas, said zinc dicyanamide being at a temperature within the range of from about 0° C. to about 70° C.; and collecting the reaction products including perfluorodicyanamide.

3,574,760

PROCESS FOR THE PREPARATION OF AMINES

Ichiro Sasaki and Sholchi Nishizaki, Kyoto, Japan, assignors to Dai-ichi Kogyo Sanyaku Kabushiki Kaisha, Kyoto, Japan

No Drawing. Filed Aug. 2, 1968, Ser. No. 749,570

Claims priority, application Japan, Aug. 3, 1967,

42/49,879

Int. Cl. B01j 11/78; C07c 85/00

U.S. Cl. 260—583

13 Claims

A process for preparing an aliphatic amine which comprises the steps of reacting an olefine having at least 4 carbon atoms which hydrocyanic acid in the presence of an acid catalyst consisting of sulfuric acid, water, and boron trifluoride, and thereafter hydrolyzing the resulting reaction product with an acid or alkali.

3,574,761

STEREO-SPECIFIC HYDROGENATION PROCESS FOR THE PREPARATION OF 9 β ,10 β -DES A-ANDROST-5-ONES AND 9 β ,10 β -DES A-PREGNAN-5-ONES

Milan Radoje Uskokovic, Montclair, and Thomas Henry Williams, Passaic, N.J., assignors to Hoffmann-La Roche Inc., Nutley, N.J.

No Drawing. Continuation-in-part of application Ser. No. 400,206, Sept. 29, 1964, now Patent No. 3,412,107. This application Oct. 20, 1965, Ser. No. 499,094

Int. Cl. C07c 49/30

U.S. Cl. 260—586

10 Claims

A process for converting Δ^5 -5-keto-desA-steroids into 9 β ,10 β -desA-steroids by catalytic hydrogenation, said 9 β ,10 β -desA-steroids being intermediates for 9 β ,10 α -steroids having anabolic, anti-androgenic and progestational properties.

3,574,762

PROCESS FOR PREPARING NAPHTHALENONES

Wataru Nagata, Nishinomiya-shi, Hyogo, Tadao Terasawa, Takatsuki-shi, Osaka, and Tsutomu Sugawara, Kobe-shi, Hyogo, Japan, assignors to Shionogi & Co., Ltd., Osaka, Japan

No Drawing. Filed July 7, 1967, Ser. No. 651,699

Claims priority, application Japan, July 9, 1966,

41/45,016

Int. Cl. C07c 49/76, 49/80, 149/82

U.S. Cl. 260—590

7 Claims

Process for the preparation of naphthalene derivatives, useful as intermediates in the preparation of phenanthrene derivatives having a potent antiandrogenic activity, and of steroid hormone, which is characterized by the epoxidation of a substituted or not substituted dihydronaphthalene derivative with an organic peracid in the reaction medium containing a lower alkanol and the subsequent elimination of an alcohol yielding a corresponding 2-tetralone derivative.

3,574,763

PRODUCTION OF SATURATED CARBONYL COMPOUNDS

Johannes Wollner, 5 Nordstrasse, Kapellen Kreis Moers, Germany, and Wilhelm Neier, 29 Schillerstrasse, Homberg, Niederrhein, Germany

No Drawing. Continuation of application Ser. No. 651,396, July 6, 1967. This application July 25,

1969, Ser. No. 849,569

Claims priority, application Germany, July 7, 1966,

R 43,650

Int. Cl. C07c 49/04

U.S. Cl. 260—593

5 Claims

This specification describes a novel process for the Aldol condensation of carbonyl-containing compounds of relatively low molecular weight to produce higher molecular weight α - β unsaturated carbonyl compounds which are hydrogenated to saturated carbonyl compounds as they are produced. There is described a novel catalyst

for this reaction which is a strongly acid cation exchange resin having metallic reduced noble metal deposited thereon. The process is carried out using a solid bed catalyst in a trickle phase. Particularly exemplified is the production of methyl isobutyl ketone by the self-condensation of acetone.

3,574,764

PROCESS FOR PRODUCING SATURATED ALIPHATIC ALDEHYDES

Xaver Gregory and Franz Büttner, Burghausen, Upper Bavaria, Germany, assignors to Wacker-Chemie G.m.b.H., Munich, Germany

No Drawing. Filed Feb. 15, 1965, Ser. No. 432,809

Claims priority, application Germany, Mar. 7, 1964,

W 36,340

Int. Cl. C07c 45/20

U.S. Cl. 260—601

3 Claims

In the process of the invention hydrogen and an unsaturated aliphatic aldehyde are passed in the vapor phase in contact with a catalyst, the said catalyst consisting essentially of nickel and a substance selected from the group consisting of elementary sulphur, sulfidic additives and sulphur compounds which are reducible under the conditions of the reaction, the sulphur content of said catalyst being 5-30% by weight referred to the metallic nickel in the catalyst.

3,574,765

PROCESS FOR DECOLORIZATION OF GLYOXAL

William C. Kuryla, St. Albans, and Jack Jackson, Charleston, W. Va., assignors to Union Carbide Corporation

No Drawing. Filed Aug. 30, 1968, Ser. No. 756,380

Int. Cl. C07c 45/24

U.S. Cl. 260—601

7 Claims

A process for reducing color from colored glyoxal solution which comprises contacting colored glyoxal solution with ozone in an amount and for a time sufficient to reduce the color of said glyoxal solution.

3,574,766

PROCESS FOR THE PRODUCTION OF β -METHYLMERCAPTOPROPIONALDEHYDE

Gerhard Meyer, Obernburg (Main), and Helmut Magerlein and Hans-Dieter Rupp, Erlenbach, Germany, assignors to Glanzstoff AG, Wuppertal, Germany

No Drawing. Filed Oct. 3, 1968, Ser. No. 764,946

Claims priority, application Germany, Oct. 13, 1967,

P 16 68 139.3

Int. Cl. C07c 45/00

U.S. Cl. 260—601

7 Claims

Process for producing β -methylmercaptopropionaldehyde in high yields by reacting acrolein with methylmercaptan in the presence of the catalyst

 R_3XY

where each R is a monovalent organic radical, X is phosphorous, arsenic or antimony and Y is oxygen or sulfur.

3,574,767

BIS-(POLYHALOVINYLOXY OR POLYHALOETHYL) TRISULFIDES

Gustave K. Kohn, Berkeley, Calif., assignor to Chevron Research Company, San Francisco, Calif.

No Drawing. Filed Nov. 29, 1968, Ser. No. 780,292

Int. Cl. C07c 149/12; A01n 21/00, 9/12

U.S. Cl. 260—608

5 Claims

Bis-(tetrahaloethyl) trisulfides and bis-(trihalovinyl) trisulfides. These trisulfides are prepared by reacting tetrahaloethylsulfenyl chloride or trihalovinylsulfenyl chloride, respectively, with hydrogen sulfide. The tetrahaloethyl compounds are useful as seed disinfectants; whereas the trihalovinyl materials are algicidal.

3,574,768

SYNTHESIS OF BETA-MERCAPTOETHANOL

Harold W. Tompkins, Phillips, Tex., assignor to Phillips Petroleum Company

No Drawing. Filed Oct. 28, 1968, Ser. No. 771,288

Int. Cl. C07c 149/18

U.S. Cl. 260—609

7 Claims

Ethylene oxide and hydrogen sulfide are reacted in liquid phase to produce monothio glycol HSCH₂CH₂OH (2-mercaptoethanol). Liquid phase retention of product catalyzes the reaction. The liquid phase with a large excess of H₂S permits good temperature control. Sufficient large excess of the H₂S over the ethylene oxide is used to control the temperature of the exothermic reaction by vaporizing the liquid excess H₂S. High yields of high purity product of the order of substantially in the range of 90 plus percent, e.g., 95 plus percent, is realized. The molecular ratio of H₂S to the oxide is broadly 5-15, and more preferably in the range 7-13. Low temperatures of the order of about 125-300° F., preferably of the order of about 130-260° F. are possible to be employed under conditions of operation. Preferably, a catalyst such as an activated alumina catalyst is used. Purities of 99.2 weight percent have been obtained.

3,574,769

2-LOWERALKOXY-4-NITRO BENZYLALCOHOLS

Robert L. Clark, Woodbridge, and Edward F. Rogers, Middletown, N.J., assignors to Merck & Co., Inc., Rahway, N.J.

No Drawing. Original application Dec. 31, 1964, Ser. No. 422,536, now Patent No. 3,520,930, dated July 21, 1970.

Divided and this application Dec. 12, 1968, Ser. No. 810,873

Int. Cl. C07c 43/20

U.S. Cl. 260—613

2 Claims

Anticoccidial 2-alkoxy-4-nitro (amino, alkylamino or arylamino)-benzylamines and benzylalcohols are prepared by selective reduction techniques from the corresponding 2-loweralkoxy-4-nitrobenzoic acid or 2-loweralkoxy-4-nitro benzonitrile. It is contemplated that dosage units of these active coccidiostats will be administered orally in the prevention and control of coccidiosis in poultry.

3,574,770

HYDROXY TERMINATED PERFLUORO ETHERS

T. O. Paine, Acting Administrator of the National Aeronautics and Space Administration, with respect to an invention of Eugene C. Stump, Jr., and Stephen Eugene Rochow, Gainesville, Fla.

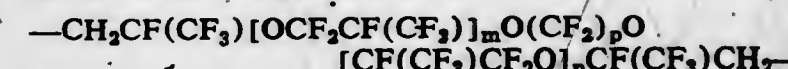
No Drawing. Filed Oct. 24, 1968, Ser. No. 770,398

Int. Cl. C07c 43/00

U.S. Cl. 260—615

2 Claims

Hydroxy terminated perfluoro ethers and polyurethane resins incorporating the structure



where

p is an integer of 2 to 12, and
m and n are integers whose sum is from 0 to 20.

3,574,771

BIS-(FLUOROALKOXY)ALKYL SILANES AND POLYMERS THEREOF

Allen G. Pittman, El Cerrito, and William L. Wasley, Berkeley, Calif., assignors to the United States of America as represented by the Secretary of Agriculture

No Drawing. Application Apr. 17, 1968, Ser. No. 736,882, now Patent No. 3,484,470, dated Dec. 16, 1969, which is a division of application Ser. No. 623,527, Mar. 16,

1967, now Patent No. 3,420,793. Divided and this application Nov. 25, 1968, Ser. No. 791,833

Int. Cl. C07c 41/04

U.S. Cl. 260—615

2 Claims

The adduct of hexafluoroacetone and an alkali metal fluoride, e.g., (CF₃)₂CF—OR, is reacted with a 1,4-dihalo-

2-butene to replace the halo groups with perfluoroisopropoxy groups. A silane containing H bonded to Si—for example HSiCl_3 —is then added across the double bond of the intermediate, producing bis-(perfluoroisopropoxy)alkyl silane derivatives which are useful, in both monomeric and polymeric form, for imparting a high degree of water- and oil-repellency to fibrous substrates, e.g., fabrics made from natural or synthetic fibers.

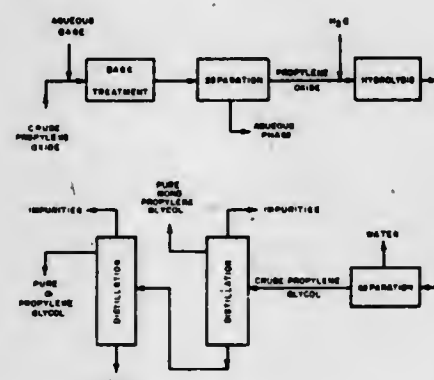
3,574,772

PREPARATION OF PURE MONO- AND DI- PROPYLENE GLYCOL BY PLURAL STAGE DISTILLATION WITH SIDE STREAM RE- COVERY

Mitchell Becker, Teaneck, and Jack B. Feder, Dumont, N.J., assignors to Halcon International, Inc.
Filed Oct. 25, 1968, Ser. No. 770,568
Int. Cl. C07c 29/24

U.S. Cl. 260—637

6 Claims



This invention relates to a process for preparing propylene glycol which meets both U.S.P. and Food Grade standards. The process comprises treating a crude propylene oxide with an aqueous base, phase separating, hydrolyzing the separated propylene oxide fraction to form propylene glycol and passing said propylene glycol into a distillation zone, fractionally distilling the propylene glycol, separating pure mono propylene glycol as a liquid stream at an intermediate point in said zone from impurities which boil higher and lower than the propylene glycol.

3,574,773

PRODUCTION OF ALK-3-EN-1-OLS

Herbert Mueller, Frankenthal, Pfalz, and Hermann Overwien and Horst Pommer, Ludwigshafen (Rhine), Germany, assignors to Badische Anilin- & Soda-Fabrik Aktiengesellschaft, Ludwigshafen (Rhine), Germany
No Drawing. Filed Feb. 15, 1968, Ser. No. 705,628
Claims priority, application Germany, Feb. 25, 1967, P 12 79 014.6; P 12 75 049.1-42, P 16 18 098.6; Dec. 30, 1967, P 16 43 729.9

Int. Cl. C07c 1/24, 33/02

U.S. Cl. 260—638

6 Claims

The production of alk-3-en-1-ols by reaction of olefins which contain at least one hydrogen atom on at least one of the carbon atoms adjacent to the carbon atoms of the double bond with an aldehyde at from 235° to 400° C.

3,574,774

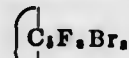
FLUOROBROMOCYCLOPENTENES CONTAINING 4 TO 7 BROMINE ATOMS

Richard Garth Pews, Midland, Mich., assignor to The Dow Chemical Company, Midland, Mich.
No Drawing. Filed Mar. 13, 1969, Ser. No. 807,122
Int. Cl. C07c 23/08, 17/20

U.S. Cl. 260—648

4 Claims

New compounds are provided in the form of fluorobromocyclopentenes characterized by the formula:



wherein x is an integer from 1 to 7, z is an integer from 1 to 7 and $x+z=8$. The compounds are prepared by fluorinating hexabromocyclopentadiene with antimony trifluoride.

3,574,775

FLUORINATION OF PERHALO COMPOUNDS

George Fuller, Somerset, England, assignor to Imperial Smelting Corporation (N.S.C.) Limited, London, England

No Drawing. Continuation-in-part of application Ser. No. 553,711, May 31, 1966, which is a continuation-in-part of application Ser. No. 278,422, May 6, 1963. This application Apr. 22, 1968, Ser. No. 723,290
Int. Cl. C07c 25/04

U.S. Cl. 260—650

4 Claims

Use of the solvent sulpholane (otherwise known as tetrahydrothiophen 1,1-dioxide or tetramethylene sulfone) in a halogen exchange reaction between a chlorinated benzene fully substituted with halogen atoms and a dry alkali metal fluoride enables one to produce fluorinated benzenes fully substituted with halogen atoms more than three of which are fluorine atoms, e.g. chloropentafluorobenzene and hexafluorobenzene.

3,574,776

GASEOUS PHASE PROCESS FOR FLUORINATION OF ALIPHATIC CHLOROHYDROCARBONS

Julius Füllöp, Welher, Bruchsal, Germany, assignor to Wasagchemie G.m.b.H., Munich, Germany

No Drawing. Filed Mar. 22, 1968, Ser. No. 715,192
Claims priority, application Germany, Apr. 8, 1967, W 43,725

Int. Cl. C07c 17/20, 19/08, 21/18

U.S. Cl. 260—653.3

7 Claims

A process for the fluorination of aliphatic chlorinated hydrocarbons which comprises the steps of reacting a gaseous phase of an aliphatic chlorinated hydrocarbon having from 1 to 6 carbon atoms under atmospheric pressure with an alkali metal fluoro-silicate at a temperature between about 250° C. and 400° C. in the presence of from about 1% to 5% by weight, based on said sodium fluoro-silicate, of a catalyst selected from the group consisting of iron oxide, iron oxide hydrates, aluminum oxides, aluminum oxide hydrates, silicon oxides, silicon oxide hydrates, mixtures thereof, mixtures thereof with aluminum chlorides and mixtures thereof with iron chlorides.

3,574,777

INTRODUCTION OF ORGANIC GROUPS INTO ETHYLENICALLY UNSATURATED HYDRO- CARBONS USING A GROUP VIII METAL SALT

Richard F. Heck, Wilmington, Del., assignor to Hercules Incorporated

No Drawing. Original application Aug. 13, 1965, Ser. No. 479,665. Divided and this application Dec. 8, 1969, Ser. No. 883,352

Int. Cl. C07c 15/02, 15/20

U.S. Cl. 260—668

14 Claims

The process involves the introduction of an organic group into an ethylenically unsaturated hydrocarbon. As an example, a mixture of diphenylmercury, lithium palladium chloride and ethylene is formed in acetonitrile as a solvent. This results in the formation of an unstable adduct between the ethylene and phenyl-palladium chloride. Decomposition of the adduct by maintaining it above its decomposition temperature provides styrene as the product.

3,574,778

PROCESS FOR SEPARATION OF META-PARA- XYLENE ISOMERS FROM THEIR MIXTURE

Charanjit Rai, Somerset, and Mohamed M. Elmogazi, Hightstown, N.J., assignors to Cities Service Oil Company, Tulsa, Okla.

No Drawing. Filed Nov. 26, 1968, Ser. No. 779,214

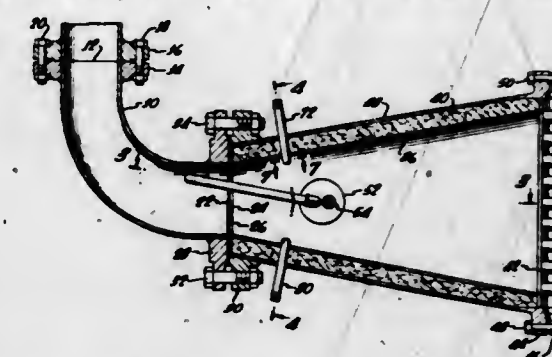
Int. Cl. C07c 7/14

U.S. Cl. 260—674

12 Claims

In the separation of para-xylene from mixtures consisting predominantly of meta- and para-xylene isomers by fractional crystallization; small amounts of gaseous eutectic inhibitors are dissolved in the xylene mixture to lower the eutectic point of the mixture and improve recovery of para-xylene therefrom. The amount of gas dissolved in the xylene mixture is between about 0.01 and about 4.0 mole percent and is preferably in the range between about 0.3 and about 1.0 mole percent.

a frusto conical expansion section of critical angular dimension and including steam injection conduits for



forming a steam sheath adjacent the walls of the expansion section for preventing coke formation is disclosed.

3,574,782

PROCESS FOR PRODUCING LINEAR ALPHA OLEFINS

Roby Bearden, Jr., Baton Rouge, and Neville L. Cull, Baker, La., assignors to Esso Research and Engineering Company

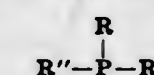
No Drawing. Filed Oct. 16, 1967, Ser. No. 675,335

Int. Cl. C07c 3/18

U.S. Cl. 260—683.15

7 Claims

A process for preparing linear alpha olefins having an average molecular weight ranging from about 70 to about 300 by polymerizing an ethylene containing gas in the presence of a homogeneous catalyst formed upon reacting a transition metal halide selected from the group consisting of TiX_4 , $\text{TiX}_3\text{OR}'$ and $\text{TiX}_2\text{OOCR}'$ wherein X is selected from the group consisting of chlorine and bromine and R' is selected from the group consisting of alkyl, allyl, aralkyl and cycloalkyl with an aluminum alkyl halide compound characterized by the formula $\text{AlR}_n\text{X}_{3-n}$ wherein R is selected from the group consisting of alkyl, aralkyl and cycloalkyl, X is selected from the group consisting of chlorine, bromine and iodine and n is less than 2, along with from 5% to about 50 mol percent based on the moles of transition metal halide present in the catalytic mixture of a modifier characterized by the formula



wherein P is phosphorus and R, R' and R'' being the same or different are selected from the group consisting of hydrogen, alkyl, cycloalkyl and alkoxy containing from 1 to 20 carbon atoms, in the presence of a polar diluent selected from the group consisting of aromatic, halogenated aromatic and halogenated aliphatic compounds at a temperature below 75° C. at a pressure sufficient to liquefy the ethylene.

3,574,783

CONTINUOUS HEAT-CURING OF MATERIALS

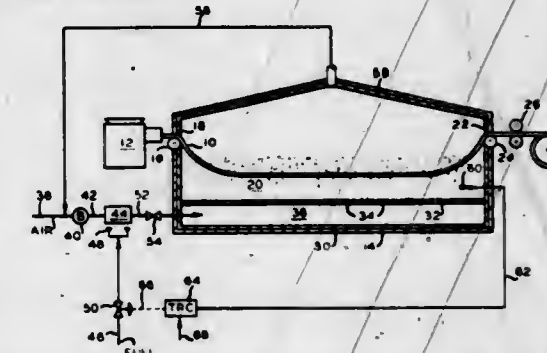
Agmund K. Thorsrud, Madrid, Spain, assignor to Phillips Petroleum Company

Filed Mar. 30, 1967, Ser. No. 627,185

Int. Cl. C08c 17/28

U.S. Cl. 260—812

7 Claims



A method for the continuous heat-curing of materials by passing same through a fluidized, heated layer of small

3,574,780

METHOD FOR PRODUCING ISOPRENE

Yoshihiro Watanabe, Kobe, Jiro Kobayashi, Takatsuki-shi, Yoshiki Toyoshima, Niihama-shi, and Masatoshi Saito, Ichihara-shi, Japan, assignors to Sumitomo Chemical Company, Ltd., Osaka, Japan

No Drawing. Filed Aug. 8, 1969, Ser. No. 848,726

Int. Cl. C07c 1/20; B011 11/06

U.S. Cl. 260—681

5 Claims

Isoprene is produced by contacting at an elevated temperature a gaseous mixture containing tert-butyl methyl ether and oxygen with a suitable catalyst containing, as at least one component, a compound comprising oxygen and one or more members selected from the group consisting of molybdenum, vanadium, tungsten and uranium.

3,574,781

TRANSITION SECTION FOR ETHYLENE PRODUCTION UNIT

William J. Racine, Los Alamitos, Thomas W. Kunkel, Long Beach, James H. Caldwell, Jr., Manhattan Beach, and Edward T. Tregilgas, Jr., Palos Verdes Estates, Calif., assignors to Atlantic Richfield Company, Philadelphia, Pa.

Filed Feb. 14, 1968, Ser. No. 709,528

Int. Cl. C07c 3/08; C10g 9/16, 9/18

U.S. Cl. 260—683

10 Claims

A transition section for expanding coke-forming hydrocarbon gases from an ethylene cracker prior to passage of such gases through a heat exchanger for preventing the formation of coke in the transition unit including

particles of fluorocarbon resins; the apparent density of the fluidized particles being equal to or less than the density of the material being cured.

3,574,784

CARBON-NITROGEN BACKBONE BLOCK COPOLYMERS AS ANTISOILANTS

Morton H. Litt, University Heights, Ohio, and Jack L. Herz, East Syracuse, N.Y., assignors to Allied Chemical Corporation, New York, N.Y.
No Drawing. Filed Mar. 28, 1968, Ser. No. 716,979
Int. Cl. C08g 41/04

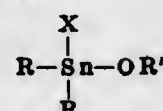
U.S. Cl. 260—823 12 Claims
Block copolymers prepared from 2-substituted- Δ^2 -oxazolines and 2-substituted-5,6-dihydro-4H-1,3-oxazines are excellent antisoilants for a wide variety of substrate materials. These block copolymers are prepared by first homopolymerizing either oxazine or oxazoline monomer; then the other monomer is added to the first-formed base polymer. The second monomer will add on to the end of the first-formed based polymer and homopolymerize, thereby forming block copolymers consisting essentially of joined oxazine and oxazoline homopolymer chains. A surface coating of these block copolymers significantly inhibits soiling of the coated substrate. Also, when deposited on the surface of, or incorporated into a substrate, these block copolymers are effective antistats.

3,574,785

SILOXANE COMPOSITIONS CONTAINING TIN COMPOUNDS

Rajendra Nath Chaddha, Ann Arbor, and Kailash Chandra Pande, Adrian, Mich., assignors to Stauffer-Wacker Silicone Corporation
No Drawing. Original application Sept. 2, 1965, Ser. No. 484,769, now Patent No. 3,470,221, dated Sept. 30, 1969. Divided and this application Nov. 6, 1968, Ser. No. 795,133
Int. Cl. C08g 47/00

U.S. Cl. 260—825 6 Claims
A room temperature curable silicone composition comprising a polydiorganosiloxane, an organosilicon cross-linking agent and as a catalyst a compound conforming to the formula:



where R is a radical selected from the group consisting of alkyl, aryl, alkaryl, alkenyl, and haloalkyl, R' is an alkyl radical of from 1 to 15 carbon atoms and X is halogen. The above room temperature curable composition is used in mold making and in the construction industry for caulking.

3,574,786

POLYACETAL COMPOSITIONS STABILIZED WITH A POLYMER FROM A DICARBOXYLIC ACID DIHYDRAZIDE, DIAMINE AND UREA

Shinichi Ishida, Tokyo, Noboru Ohshima, Saitama-ken, and Hiromichi Fukuda and Takeshi Sato, Tokyo, Japan, assignors to Asahi Kasei Kogyo Kabushiki Kaisha, Asaka, Japan
Filed Dec. 20, 1968, Ser. No. 785,599
Claims priority, application Japan, Dec. 25, 1967, 42/82,876
Int. Cl. C08g 41/04

U.S. Cl. 260—857 4 Claims
Polyoxymethylene compositions may be stabilized by the addition of 0.1 to 10% of a polymeric condensate prepared by reacting a dicarboxylic acid dihydrazide, a diamine, and a urea, thiourea or derivatives thereof. The proportions of the reactants are 1:0.1–5:0.1–10 respectively. The condensate is prepared by heating the reactants

at 50° C.–300° C. from 1 to 20 hours in air or inert gas. A polyacetal composition containing as a thermal stabilizer a nitrogen-containing ternary condensation polymer comprising (A) dicarboxylic acid dihydrazide, (B) diamine or polyamine and (C) urea, urea derivatives, thiourea or thiourea derivatives.

3,574,787

ACETOACETIC ACID ESTERS AS ADDITIONAL ACCELERATORS FOR POLYESTER MOULDING AND COATING MATERIALS

Hans Rudolph, Krefeld-Bockum, and Joachim Schneider and Manfred Patheger, Krefeld-Uerdingen, and Clemens Niehaus, Krefeld, Germany, assignors to Farbenfabriken Bayer Aktiengesellschaft, Leverkusen, Germany
No Drawing. Continuation-in-part of application Ser. No. 690,106, Dec. 13, 1967. This application June 9, 1969, Ser. No. 831,780
Claims priority, application Germany, June 11, 1968, P 17 69 578.2
Int. Cl. C08f 1/62, 21/02, 21/04

U.S. Cl. 260—863 4 Claims
The invention relates to moulding and coating compositions being rapidly hardenable at room temperature after the addition of hydroperoxide as polymerisation catalyst comprising mixtures of unsaturated polyesters derived from α,β -ethylenically unsaturated dicarboxylic acids and polyalcohols, and monomeric ethylenically unsaturated compounds copolymerisable therewith, said mixtures containing a cobalt salt as accelerator and acetoacetic acid esters which contain once or several times the radical



attached to a hydroxyl group, ether oxygen, sulfur, the $-\text{CH}=\text{CH}-$ group or nitrogen, R meaning a divalent hydrocarbon radical having up to 3 carbon atoms in the chain.

3,574,788

THICKENABLE UNSATURATED POLYESTER RESIN SYSTEM

Melvin E. Baum, Monroeville, Pa., assignor to Koppers Company, Inc.
Filed Sept. 18, 1967, Ser. No. 668,585
Int. Cl. C08f 21/02

U.S. Cl. 260—865 1 Claim
An unsaturated polyester resin system capable of being chemically thickened comprises: (1) an unsaturated polyester; (2) a copolymerizable vinyl aryl monomer; (3) N-vinylcarbazole; and (4) triphenyl phosphite. The system is chemically thickened by the polymerization of the N-vinylcarbazole which is catalyzed by the triphenyl phosphite. The system is, therefore, thickened before initiation of the vinyl copolymerization between the unsaturated polyester and the copolymerizable vinyl aryl monomer.

3,574,789

POLYESTER PROCESSING AIDS FOR PVC RESIN

Janis A. Bungs, Willoughby, and Charles L. Steglaff, Mentor, Ohio, assignors to Diamond Shamrock Corporation
No Drawing. Filed Sept. 15, 1967, Ser. No. 668,221
Int. Cl. C08g 39/10

U.S. Cl. 260—873 12 Claims
Rigid compositions, containing polyvinyl chloride resin, retain desirable rigidity, and exhibit enhanced processing properties, e.g., a lower processing temperature, as a result of blending the resin with a minor amount of low molecular weight (degree of polymerization below about 30) polyester resins. The polyester resins suitable for modifying agents are typically prepared from short chain aliphatic glycol and diacid building blocks. Resulting

homogeneous products, in addition to rigidity, retain essentially the desirable physical properties of unmodified solid compositions.

3,574,790

POLYSTYRENE COMPOSITION OF SUPPRESSED ELECTROSTATIC ACCUMULATION TENDENCIES

David W. Young, Homewood, Ill., and Henry V. Isaacson, Minneapolis, Minn., assignors to Sinclair Research, Inc., New York, N.Y.
No Drawing. Filed Dec. 7, 1967, Ser. No. 688,689
Int. Cl. C08f 7/04, 33/08

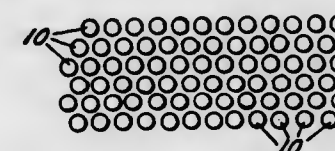
U.S. Cl. 260—874 6 Claims
A polystyrene composition in which electrostatic charges are suppressed which comprises polystyrene and an amount, sufficient to suppress the accumulation of electrostatic charges, e.g. about 0.05 to 0.5 wt. percent, based on the polystyrene, of a copolymer of styrene and maleic anhydride having a ratio of styrene to maleic anhydride of about 1 to 4:1 and a molecular weight of about 700 to 8,000.

3,574,791

BLOCK AND GRAFT COPOLYMERS CONTAINING WATER-SOLVATABLE POLAR GROUPS AND FLUOROALIPHATIC GROUPS

Patsy O. Sherman, Bloomington, and Samuel Smith, Roseville, Minn., assignors to Minnesota Mining and Manufacturing Company, St. Paul, Minn.
Continuation-in-part of application Ser. No. 614,925, Feb. 9, 1967. This application Jan. 15, 1968, Ser. No. 698,016
Int. Cl. C08f 15/26, 15/28

U.S. Cl. 260—884 8 Claims



Hybrid polymers provide sufficient oleophobicity and hydrophilicity in water so that fabrics treated therewith have increased ability to release oily stains on laundering. Oleophobic and hydrophilic moieties are combined in coatable copolymers so that the relative mobility of the moieties is assured under some set of conditions of temperature and environment. Surfaces treated with the resulting copolymers respond reversibly to changes of environment, e.g. gaseous to aqueous milieu and vice versa, by a change in kind of properties. As a non-limiting example, fluorochemical moieties and hydrophilic polyether moieties are combined through sulfur atoms to give polymers which are applied as oil and water-repellent treatments with other, e.g. crease resistant, textile treatments. Fabrics thus treated are repeatedly launderable to remove oily stains.

3,574,792

SYNTHETIC RUBBER COMPOSITION

Hideo Hayashi, Kawasaki-shi, Japan, assignor to Nippon Petrochemicals Company, Ltd., Tokyo, Japan
No Drawing. Filed Aug. 15, 1968, Ser. No. 752,737
Claims priority, application Japan, Aug. 18, 1967, 42/52,728
Int. Cl. C08d 9/08; C08f 29/12

U.S. Cl. 260—894 6 Claims
A synthetic rubber composition having improved tackiness which comprises

(i) a synthetic rubber and an addition product of unsaturated acid or anhydride thereof and a hydrocarbon resin obtained by polymerizing a fraction boiling within the range of from 20° C. to 280° C. and containing unsaturated hydrocarbons, said fraction being a by-product obtained in the cracking of petroleum oil to produce olefins, or

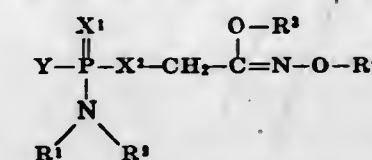
(ii) a synthetic rubber and an esterified product of said addition product.

3,574,793

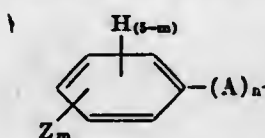
IMINO PHOSPHORAMIDATES

Sidney B. Richter, Skokie, and Ephraim H. Kaplan, Chicago, Ill., assignors to Velsicol Chemical Corporation, Chicago, Ill.
No Drawing. Filed July 24, 1968, Ser. No. 747,077
Int. Cl. C07f 9/08, 9/16, 9/40

U.S. Cl. 260—944 6 Claims
This invention discloses compounds of the formula



wherein Y is selected from the group consisting of alkyl, alkenyl, alkoxy, alkenyloxy, alkylthio and



wherein Z is selected from the group consisting of alkyl, alkenyl, alkoxy, alkylthio, halogen, nitro, alkylsulfoxide, alkylsulfone and dialkylamino, m is an integer from 0 to 5, A is selected from the group consisting of oxygen, sulfur, and alkylene, and n is an integer from 0 to 1; R¹ and R² are independently selected from the group consisting of hydrogen and alkyl; R³ and R⁴ are alkyl; and X¹ and X² are independently selected from the group consisting of oxygen and sulfur. This invention also discloses insecticidal and acaricidal compositions comprising an inert carrier, and as an essential active ingredient, in a quantity toxic to insects and acarids a compound of the above description; and further a method of destroying insects and acarids which comprises applying to said insects and acarids an aforesaid insecticidal and acaricidal composition.

3,574,794

ACRYLIC OR METHACRYLIC ESTERS OF HYDROXYALKYL PHOSPHATE ESTERS AND PROCESS FOR MAKING SAME

Sampse R. Hargis, Jr., Brazoria, Tex., assignor to The Dow Chemical Company, Midland, Mich.
No Drawing. Filed Jan. 22, 1968, Ser. No. 699,288
Int. Cl. C07f 9/08; C08f 45/58

U.S. Cl. 260—952 6 Claims
Flame retardant thermosettable resins are prepared by incorporating therein a flame retardant amount of a polymerizable phosphate ester prepared by reacting a hydroxyalkyl acrylate or methacrylate with P₂O₅ and subsequently reacting the product with an alkylene oxide to convert substantially all the unreacted phosphoric acid groups to hydroxyalkyl ester groups.

3,574,795

CATIONIC ADDITION OF DIHYDROCARBYL THIOPHOSPHORIC ACIDS TO CONJUGATED DIENES AND PRODUCT

Alexis A. Oswald, Mountainside, Wolfgang H. Mueller, Elizabeth, and Francis A. Danilher, Westfield, N.J., assignors to Esso Research and Engineering Company
No Drawing. Filed May 22, 1967, Ser. No. 640,355
The portion of the term of the patent subsequent to Sept. 5, 1984, has been disclaimed
Int. Cl. C07f 7/16; C07d 105/04; A01n 9/36

U.S. Cl. 260—956 17 Claims
Dihydrocarbyl dithiophosphoric and monothiophosphoric acids add to conjugated dienes in acid media by a

cationic addition mechanism; the monoadducts formed thereby are useful as pesticides and lubricating oil additives.

3,574,796

PROCESS FOR THE PREPARATION OF PHOSPHORUS ACID ESTERS

David E. Ramey and Kurt H. G. Pilgram, Modesto, Calif., assignors to Shell Oil Company, New York, N.Y.

No Drawing. Filed Oct. 15, 1968, Ser. No. 767,852

Int. Cl. C07f 9/16, 9/40

U.S. Cl. 260—972 7 Claims

In the reaction of an alkali metal salt of an alpha-haloacetophenone anion with O,O-dialkyl phosphorohalido- and O-alkyl alkylphosphonohalidothioates to prepare O-[2-halo-1-(polyhalophenyl)vinyl] esters of O,O-dialkyl phosphorothioic and O-alkyl alkylphosphonothioic acids, respectively, increased yields of the esters are obtained when technical grade thioates are pre-treated with a small amount of a triester of phosphorous acid.

3,574,797

PROCESS FOR MAKING 2-PHENOXY-4,5-DIBENZO-1-OXA-3-THIA-2-PHOSPHOLANES

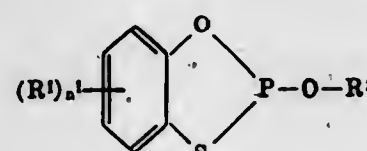
James J. Hodan, Williamsville, and James L. Dever, Lewiston, N.Y., assignors to Hooker Chemical Corporation, Niagara Falls, N.Y.

No Drawing. Filed Aug. 31, 1967, Ser. No. 664,611

Int. Cl. C07d 105/04; C08f 45/58; A01n 9/36

U.S. Cl. 260—973 11 Claims

A process for producing a novel compound of the formula:



in which R² is selected from the group consisting of aryl and substituted aryl, in which R¹ is selected from the group consisting of alkyl, substituted alkyl, aryl, and substituted aryl, for example, and in which n¹ is from 0 to 4. Where n¹ is more than 1, the multiple substituents may be either the same or different. A compound of this type is useful as a bactericide. Additionally, a compound of this type is suitable for use as an intermediate in the synthesis of more complicated compounds, and as a polymer stabilizer.

3,574,798

DIARYL PHOSPHORHYDRAZIDOTHIONATE PROCESS

Andrew C. Hazy and Franklin P. Darmory, New Haven, Conn., assignors to Olin Corporation

No Drawing. Filed Nov. 12, 1968, Ser. No. 775,153

Int. Cl. C07f 9/14, 9/22

U.S. Cl. 260—984 3 Claims

Diaryl phosphorhydrazidothionates are prepared by reacting a phenol having the formula ROH wherein R is alkyl-substituted phenyl having 9 to 18 carbon atoms, with thiophosphoryl chloride and hydrazine in the presence of potassium carbonate in a chloroform medium at 40–70° C. These diaryl phosphorhydrazidothionates are valuable antioxidants for polyolefins.

THIAZOLYPENICILLINS AND THEIR PREPARATION

Peter Bamberg, Enhorna, and Berndt Olof Harald Sjöberg, Södertälje, Sweden, assignors to Aktiebolaget Astra, Södertälje, Sweden

No Drawing. Filed Mar. 18, 1968, Ser. No. 714,000

Claims priority, application Great Britain, Mar. 20, 1967, 12,880/67

Int. Cl. C07d 99/16

U.S. Cl. 260—239.1 7 Claims

A new class of penicillins is disclosed, which penicillins contain a thiazolyl, a thiazolylmethyl or a substituted thiazolylmethyl group in the side chain. Method of synthesis and evaluations of anti-bacterial activity are described.

3,574,800

METHOD OF PREPARING STAPLE-CONTAINING PROPELLANT GRAINS

Everette M. Pierce, Somerville, Ala., assignor to the United States of America as represented by the Secretary of the Army

Filed Nov. 1, 1965, Ser. No. 506,018

Int. Cl. C06b 21/02

U.S. Cl. 264—3 5 Claims



Staple-containing propellant grains are prepared by extruding strands of all of the propellant ingredients except the plasticizer around a continuous metal wire. The extruded strands are chopped into short pellets and the pellets are disposed in a mold. Liquid plasticizer is then introduced, and the grain is cured. In this process, degradation of metal staples during mixing and cutting of pellets is avoided, and the staples take the form of wires which extend the full length of the pellets. The burning characteristics of the grain are substantially improved by the increased staple length.

3,574,801

METHOD FOR MAKING PANELS OF THE ARTIFICIAL STONE-TYPE

Georg Jauner, Bologna, Italy, assignor to Repla SA, Lugano, Switzerland

No Drawing. Filed Sept. 30, 1968, Ser. No. 763,913

Claims priority, application Switzerland, Dec. 6, 1967, 17,159/67

Int. Cl. B28b 1/08, 1/16

U.S. Cl. 264—37 7 Claims

Method of making panels of the artificial stone-type from conglomerates of synthetic resins and granulates, particularly granite and marble wherein the resins are catalyzed, the granulates are added thereto and homogenized, a mold is filled with the homogenized mass at normal working temperatures, the mold is vibrated, an excess of quartz sand is distributed over the back side of the panel, the mold is passed through a polymerization tunnel, the flash is removed, the mold is cooled and the panel is removed from the mold.

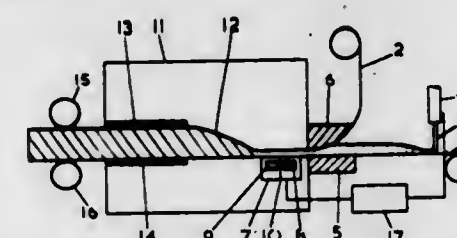
PROCESS FOR THE PRODUCTION OF FOAMED SLABS AND LAMINATES WHILE CONTINUOUSLY SENSING AND ADJUSTING THE WIDTH OF THE SLAB

Lesley Hinds, Welwyn Garden, and David Robin Lander, Shillington, near Hitchin, England, assignors to Imperial Chemical Industries Limited, London, England

Filed Oct. 21, 1968, Ser. No. 769,340
Claims priority, application Great Britain, Oct. 23, 1967, 48,094/67

Int. Cl. B29d 27/04

U.S. Cl. 264—47 9 Claims



A process for the production of foam synthetic plastic materials optionally provided with a facing sheet on one or more surfaces which comprises depositing a foamable composition onto a carrier web, applying a second web above and in contact with the deposited foamable composition, passing the sandwich thus produced through a metering slit which produces a controlled distance between the webs, sensing the width of the foamable composition subsequent to its passage through said slit then adjusting the rate of depositing of said foamable composition in response to the sensed width and heating to foam and set the deposited layer.

3,574,803

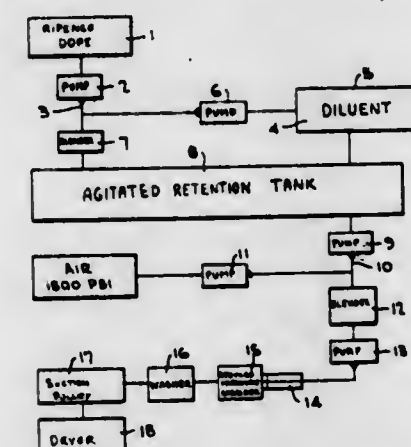
METHOD OF MANUFACTURING A FOAMED CELLULOSE ESTER FILTER

Bruce B. Allen and Jesse L. Riley, Charlotte, N.C., assignors to Celanese Corporation, New York, N.Y.

Filed Nov. 15, 1966, Ser. No. 594,500
Int. Cl. B29d 7/02; C08b 27/04, 17/42, 21/02, 27/22, 29/38

U.S. Cl. 264—50

13 Claims



Cellulose ester foams are prepared by dissolving an inert gas under pressure into ripened cellulose ester dope at its incipient precipitation point and precipitating the cellulose ester while reducing the pressure on said dope to produce a solid foam.

3,574,804

METHOD FOR PREPARING FILAMENTS FROM THERMOPLASTIC FILM

Paul Joonase, Greenville, S.C., assignor to W. R. Grace & Co., Duncan, S.C.

Filed Nov. 18, 1966, Ser. No. 599,991

Int. Cl. B29c 17/14

U.S. Cl. 264—80 2 Claims

According to the invention, superior filaments having beaded edges and which are suitable for twisting and

weaving are prepared from thermoplastic film by severing the film with flame as it is selectively cooled while passing over a cooled, grooved roll. Alternately, the film may be cooled and the flame selectively applied as with a



gas flame fitted with a slitted heat shield. By using a double wound film, tubular filaments are prepared when the film is heat severed and the edges of two or more filaments fuse together.

3,574,805

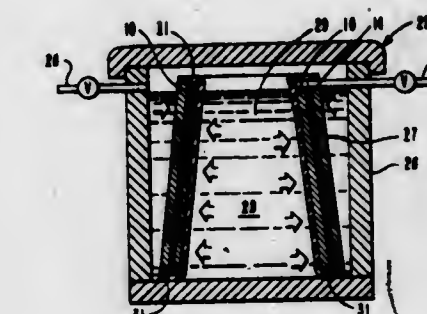
METHOD OF MAKING HIGH TEMPERATURE BODIES

Donald M. Hatch, Harbor City, and Walter W. Wood, Inglewood, Calif., assignors to Hiteco

Filed Jan. 17, 1966, Ser. No. 521,152

Int. Cl. B29c 17/04, 23/00; B29d 23/03; B29h 7/02

U.S. Cl. 264—88 4 Claims



Large unitary ablative parts are prepared by molding a plurality of individual segments comprising generally randomly oriented fibers disposed within a settable and curable resin matrix at elevated temperatures and pressures to partially cure and densify the segments, followed by assembling the segments into the desired final configuration and thereafter heat curing and densifying the plurality of segments at elevated temperatures and pressures sufficient to join the segments into a finally cured unified structurally stable ablative part.

3,574,806

METHOD FOR PRODUCING FLATTENED SHEETING OR FLATTENED TUBING OF MOLTEN THERMOPLASTIC RESINS CIRCUMFERENTIAL CHILL CASTING

Willis A. Potter, Orange, Tex., and Richard L. Alexander, Greensburg, Ind., assignors to Gulf Oil Corporation, Pittsburgh, Pa.

Filed Sept. 7, 1967, Ser. No. 666,092

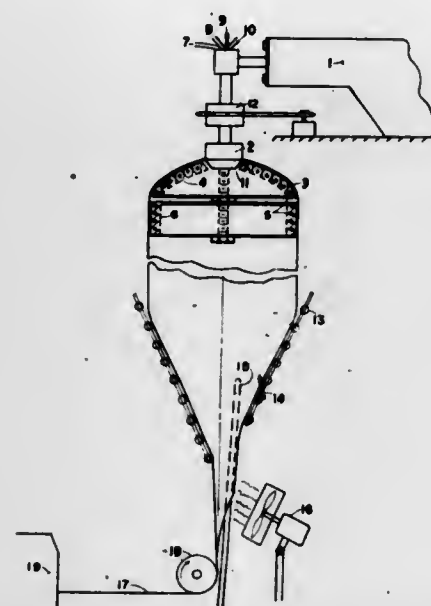
Int. Cl. B29c 17/07

U.S. Cl. 264—89 5 Claims

Method for producing polymer film by extruding a polymer from a radial die to form film tubing, cooling the extruded polymer film tubing over an arcuate, shoulder-shaped heated mandrel while the polymer film tubing is supported by a thin layer of moving air, then further cooling the polymer film tubing by contacting the tubing with a cooled porous mandrel which has internal vacuum to create intimate contact, then slitting the tubing.

blowing air into the opening caused by the slit, and causing the slit tubing to lay flat with a wedge-shaped

point at a rate sufficient to produce turbulent flow and internal strain within said heat softenable material in excess of the critical strain rate of said material to produce patterned deformations therein and conforming the



tubing opener, then finally winding up the flat sheet into rolls.

3,574,807

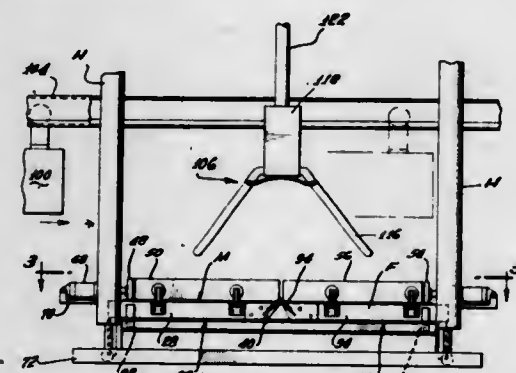
METHOD OF MOLDING WITH AN ANGULATED CAVITY FORM

Edward A. Heavener, Long Beach, Calif., assignor to Gulf Development, Inc., Los Angeles, Calif.
Filed Dec. 20, 1967, Ser. No. 692,193

Int. Cl. B29c 17/02, 17/04

U.S. Cl. 264-92

6 Claims



Sheet material to be formed over the angulated cavity form C (FIGS. 1 and 2) is clamped on a frame F. The frame F and preheated sheet M are lowered by hydraulic motors H. Abutments A engage the lowering frame F and cause it to fold about the angulated form (FIGS. 4a and 4b) progressively to effect seals along side flanges S of the form (FIG. 2) and ultimately to form seals along the end flanges E by an overdraw. Vacuum is then applied. The depth of draw is minimized; the wall thickness is substantially maintained to achieve substantial strength in the finished part; very little plastic material is wasted as the molded part is trimmed.

3,574,808

METHOD OF FORMING PATTERNED ARTICLES EMPLOYING DIFFERENTIAL PRESSURE

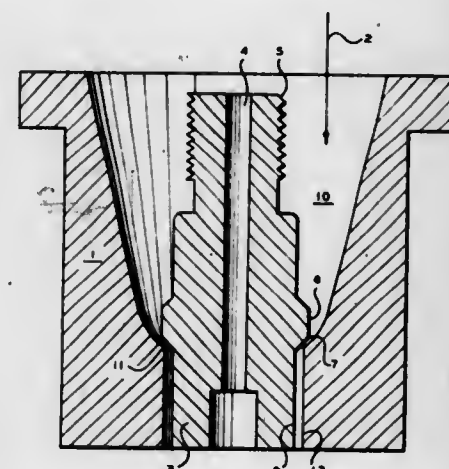
Gerald A. Matthews and Claude C. Spencer, Jr., Bartlesville, Okla., assignors to Phillips Petroleum Company
Filed Oct. 16, 1968, Ser. No. 768,144

Int. Cl. B29c 17/07; B29f 3/06

U.S. Cl. 264-98

10 Claims

Patterned articles are produced from heat softenable viscoelastic pseudoplastics at temperatures above their softening points by passing said materials through a restricted cross-section at a temperature above the softening



resultant patterned material to a predetermined shape at a temperature above the softening point at which the material will not flow substantially under its own weight and reducing the temperature to a point below the softening point.

3,574,809

METHOD FOR MAKING ORIENTED WEBS POSSESSING PROJECTING UNORIENTED SECTIONS

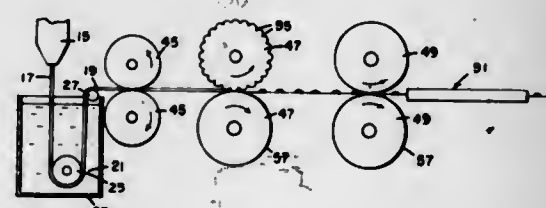
Theodore H. Fairbanks, West Chester, Robert F. Gillespie, Havertown, and Dorsey C. Nelson, Springfield, Pa., assignors to FMC Corporation, Philadelphia, Pa.

Filed Dec. 17, 1968, Ser. No. 784,362

Int. Cl. D01d 5/20

U.S. Cl. 264-167

7 Claims



Manufacture of an unbroken polymeric web or film having projecting unoriented sections surrounded by a predetermined pattern of uniaxially and biaxially oriented regions is disclosed wherein the patterned web is produced by a longitudinal stretching of the said web at longitudinally spaced intervals followed by a transverse stretch of the resulting structure.

3,574,810

METHOD FOR MANUFACTURING PIPES POSSESSING THERMOPLASTIC REINFORCEMENT

Jacques Tournery, Clermont-Ferrand, and Fernand Tuyeras, Aulnat, France, assignors to Pneumatiques, Caoutchouc Manufacture et Plastiques Kleber-Colombes, Colombes, France

Filed Mar. 13, 1968, Ser. No. 712,819

Claims priority, application France, Mar. 15, 1967, 98,978; June 9, 1967, 109,899

Int. Cl. B29d 23/04; B29f 3/10

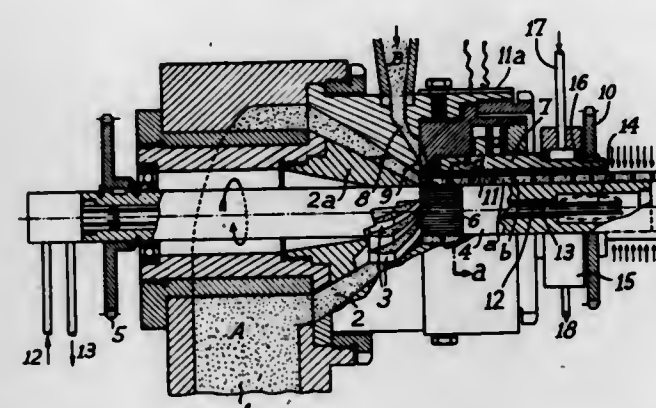
U.S. Cl. 264-173

5 Claims

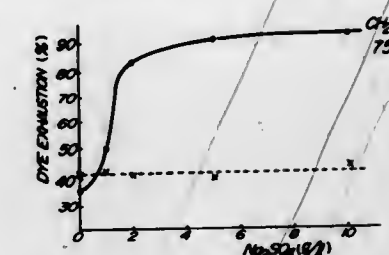
This invention relates to the manufacture of thermoplastics pipes in which a reinforcement is contained within a wall thereof, the reinforcement also being made from thermoplastics material and in the form of a helically

wound ring. In accordance with this invention, a continuous cylinder is extruded in a machine to form the wall of the pipe and, in the same machine, the reinforcing

to 75° C. under a tension of up to 0.3 g./d. and then treated in a third bath containing alkali metal-, alkaline earth metal- and/or ammonium-salts of sulfuric acid at a pH of 2.0 and 10.5 and a temperature of 30° to 70° C.



ring is extruded inside the cylinder: the point of application of the reinforcing ring and the cylinder being relatively rotated along the axis of the cylinder itself.



The obtained highly crimped polynosic fibers have an asymmetric structure with the core-stainable layer positioned at the inside track of the crimp bend; the dye exhaustion is at least 40%; wet modulus is 0.5 to 1.8 g./d. and crimps are more than 10/25 mm.

3,574,811

POLYAMIDE WET-SPINNING AND STRETCHING PROCESS

Saunders E. Jamison, Summit, N.J., assignor to Celanese Corporation, New York, N.Y.

Continuation of application Ser. No. 507,472, Nov. 12, 1965. This application Oct. 8, 1969, Ser. No. 866,120

Int. Cl. D01d 5/06, 5/16; D01f 7/04

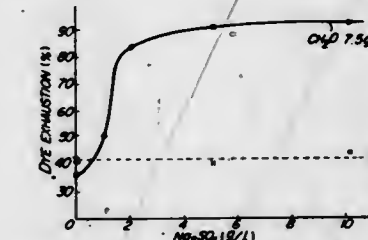
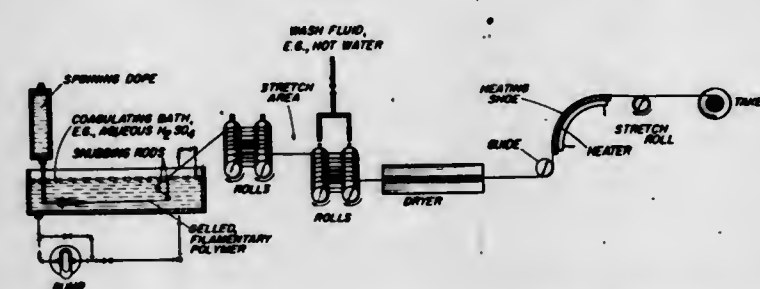
U.S. Cl. 264-184

10 Claims

U.S. Cl. 264-197

Int. Cl. D01f 3/28

6 Claims



A method of increasing the tenacity of wet-formed shaped structures such as filaments and films of filament and film forming condensation polymers of difficultly meltable condensation polymers such as polycarbonamides, polyurethanes and polyureas wherein the polymer is extruded as a solution in a solvent into a coagulation bath. The tenacity is favorably increased by snubbing the extruded polymer in the coagulation bath to tension the same and further orientating the structure in the wet state by stretching it outside of the coagulation bath to a total draw of about 1.5 to 3.5X prior to drying the gelled structure. Particularly disclosed are polyhexamethylene adipamide, which may be further hot drawn 1.1 to 2.5X at 100 to 210° C., and polyhexamethylene terephthalamide, which may be further hot drawn 1.05 to 1.5X at 270 to 350° C.

Improved polynosic fibers are obtained by extruding a viscose into a coagulation bath, stretching the resultant filaments in a second bath, treating the stretched filaments in a third bath and subjecting the fibers to regeneration. Said viscose has a γ -value of at least 50. Said coagulation bath contains sulfuric acid, 20 to 250 g./l. of sodium sulfate and more than 3 g./l. of formaldehyde. Said second bath is kept at above 60° C. and the filaments are stretched therein under a tension of at least 0.3 g./d. Said third bath contains an alkali metal salt, an alkaline earth metal salt, an ammonium salt of sulfuric acid, or a mixture thereof and is kept at a pH of 2.0 to 10.5 and at 40° to 90° C. Thus produced polynosic fibers have high tenacity, high wet-modulus and excellent fibrillation resistance.

3,574,814

PROCESS FOR MANUFACTURING POLYCARBONATE FILAMENTARY

Béla von Falkai, Wolfgang Rellensmann, Manfred Reichardt, and Alfred Reichle, Dormagen, Germany, assignors to Farbenfabriken Bayer Aktiengesellschaft, Leverkusen, Germany

No Drawing. Continuation of application Ser. No. 526,688, Feb. 11, 1966. This application Oct. 6, 1969, Ser. No. 864,960

Claims-priority, application Germany, Apr. 22, 1965, F 45,877

Int. Cl. D01d 5/12

U.S. Cl. 264-210

3 Claims

Filamentary and foil material from high molecular weight linear polycarbonate having a molecular weight from 95,000-150,000 and a crystalline content of at least 18% produced by shaping a solution of the polycarbonate

3,574,812

PROCESS FOR PRODUCING POLYNOSIC FIBERS

Masaichi Kubota, Taro Yamamura, Atsushi Kawai, and Takehiro Katsuyama, Ohtake-shi, Masamichi Ikeda, Iwakuni-shi, and Seichi Omoto, Ohtake-shi, Japan, assignors to Mitsubishi Rayon Co., Ltd., Tokyo, Japan

Filed Sept. 22, 1967, Ser. No. 669,800

Claims priority, application Japan, Sept. 26, 1966, 41/62,595; Oct. 12, 1966, 41/67,012

Int. Cl. D01f 3/28

U.S. Cl. 264-197

6 Claims

A viscose having a γ -value of at least 50 is extruded into a coagulation bath containing formaldehyde, and the resulting filaments are stretched in a second bath at 45°

in an organic solvent into linear form and stretching the linear form shaped material at a draw ratio of at least 4:1 by discrete point stretching at a temperature above the crystallization temperature limit and below the crystallite melting point thereof.

3,574,815

METHOD OF FABRICATING A PLASTIC ENCAPSULATED SEMICONDUCTOR ASSEMBLY

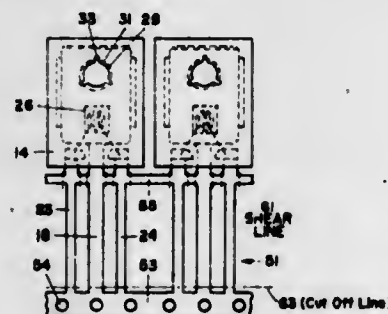
Eugene E. Segerson, Tempe, Ariz., assignor to Motorola, Inc., Franklin Park, Ill.

Continuation of application Ser. No. 693,605, Dec. 26, 1967, which is a continuation-in-part of application Ser. No. 564,818, July 13, 1966. This application Mar. 23, 1970, Ser. No. 20,458

Int. Cl. B29d 3/00

U.S. Cl. 264-269

4 Claims



A method of plastic encapsulation including the use of a core pin in a pressure-type mold which forces a non-plastic plate-like member against a die face for preventing plastic encapsulating material from flowing between the die face and the nonplastic plate-like member to form an exposed nonplastic surface on a plastic encapsulated assembly.

3,574,816

PROCESS FOR TREATING RICE HUSK

Ala El Dine Abdellatif, 35 Rue du Mont-Valerien, 92 Saint Cloud, France

No Drawing. Filed Mar. 6, 1968, Ser. No. 710,766
Claims priority, application France, Apr. 28, 1967, 104,583

Int. Cl. B28b 3/00; C04b 35/22

U.S. Cl. 264-333

18 Claims

Process for treating rice husk comprising roasting the rice husk during less than 60 seconds, in the presence of oxygen until the rice husk has lost 30-70% of its weight, mixing the rice husk as so obtained with at least 10% by weight of a water-soluble compound of calcium salts to form a mixture, moistening said mixture with an aqueous solution of an aluminum compound and, as a catalyst, piperidine, diphenylurea and aminoguanidine hydrochloride, whilst maintaining the pH of the mixture above 7, compacting the moistened mixture and, after aging the pressed product contacting it with water and then drying the moist product.

3,574,817

METHOD FOR THE MANUFACTURE OF CONCRETE PIPE FITTINGS

Glenn F. Rueggesser, Bay City, Mich., assignor to Prascak Machine Company, Inc.

Original application May 9, 1967, Ser. No. 637,170, now Patent No. 3,500,514, dated Mar. 17, 1970. Divided and this application Mar. 2, 1970, Ser. No. 15,641

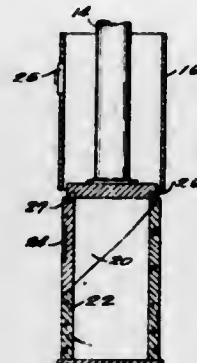
Int. Cl. B28b 7/10; B29c 7/00

U.S. Cl. 264-336

1 Claim

The present disclosure pertains to an automatic drain tile making machine which employs vertically reciprocal packer heads and push-rods to form a tile within a mold and to eject the formed tile onto a pallet by axially moving the push-rods through the mold. The machine is pro-

vided with a plurality of molds which are fixed to a turntable so as to permit simultaneous molding and ejection during each vertical cycle of a head which carries the packer heads and push-rods.



3,574,818

DIAGNOSTIC FOR RHEUMATISM

Gunter Wilhelm, Langen, Hesse, Germany (% Farbwerke Hoechst AG, Frankfurt am Main, Germany)

No Drawing. Filed Aug. 3, 1967, Ser. No. 658,058
Claims priority, application Germany, Aug. 6, 1966, R 43,854

Int. Cl. G01n 33/16

U.S. Cl. 424-9

3 Claims

A diagnostic for rheumatism, adaptable to topical application to the skin, consisting essentially of an aqueous solution of a nucleoproteide. A method for preparing the diagnostic by isolation from aqueous homogenizates of a streptococcus of Group A or C.

3,574,819

PHARMACEUTICAL COMPOSITIONS FOR TREATING DIGESTIVE DISORDERS CONTAINING 4,7-PHENANTHROLIN - 5,6 - QUINONE TOGETHER WITH PANCREATIN, BROMELIN, DEHYDROCHOLIC ACID AND 7 - IODO - 5 - CHLORO-8-HYDROXYQUINOLINE

Franz Gross, Bottmingen, Switzerland, and Christian Bltner, Wehr, Baden, and Rudolf Relpert, Schworstadt, Germany, Guenther Mueller, Ariesheim, Switzerland, and Kurt Bauer, Opladen-Quettingen, Germany, assignors to Ciba Corporation, New York, N.Y.

No Drawing. Filed Dec. 4, 1967, Ser. No. 687,432
Claims priority, application Switzerland, Dec. 8, 1966, 17,502/66

Int. Cl. A61k 9/00

U.S. Cl. 424-21

4 Claims

New pharmaceutical preparations for oral administration containing as active ingredients 4,7-phenanthroline-5,6-quinone, pancreatin, bromelin, dehydrocholic acid and 7-iodo-5-chloro-8-hydroxyquinoline, and a method of treating digestive disorders consisting in administering such pharmaceutical compositions.

3,574,820

MEDICINAL DOSAGE FORMS OF UNPOLYMERIZED THIOLATED GELATIN WITH A CROSS-LINKING ACCELERATING AGENT PROVIDING SLOWLY RELEASED MEDICATION FROM A SWOLLEN MATRIX

Richard H. Johnson and Englebert L. Rowe, Kalamazoo, Mich., assignors to The Upjohn Company, Kalamazoo, Mich.

No Drawing. Continuation of application Ser. No. 302,741, Aug. 16, 1963. This application Jan. 8, 1968, Ser. No. 696,102

Int. Cl. A61k 27/12

U.S. Cl. 424-22

4 Claims

A dry solid medicinal dosage form comprising a medicinal agent, the reaction product of gelatin with N-acetyl-

homocysteine thiolactone having an average molecular weight of from 10,000 to 500,000 and having an average of from about 3.5 to about 30-SH equivalents per 100,000 grams and accelerating agent (hardening or sulphydryl cross-linking agent which can be a pharmacologically acceptable oxidizing agent or base) and one or both of a non-digestible hydrophilic colloid and a water soluble mineral acid salt. The dosage form containing the reaction product of gelatin with N-acetylhomocysteine thiolactone in the unpolymerized form, i.e., the product is not cross-linked and contains free sulfhydryl groups.

3,574,821

FEMININE HYGIENE SPRAY DEODORANT COMPOSITIONS

Rolf Wilhelm Pfirrmann and Peter Geistlich, Lucerne, Switzerland, assignors to Mediline A.G., Wolhusen, Lucerne, Switzerland

No Drawing. Continuation-in-part of application Ser. No. 370,111, May 25, 1964. This application Oct. 23, 1967, Ser. No. 677,018

Claims priority, application Great Britain, May 31, 1963, 21,976/63

Int. Cl. A61k 9/00; A61l 23/00

U.S. Cl. 424-45

10 Claims

An article of toiletry in the form of an aerosol spray unit for use in feminine hygiene is prepared by filling a suitable aerosol container with a composition including an organic aerosol propellant substantially at least as volatile as dichlorodifluoromethane, from 0.01%-10% by weight of at least one cosmetically acceptable bactericide and from 0.01%-10% by weight of at least one emollient substance which may be a fat, oil or oily or fatty non-ionic emulsifying agent, the composition containing less than 10% by weight of undissolved solid material.

3,574,822

POWDERED COSMETICS OF HYDROPHILIC HYDROXY LOWER ALKYL ACRYLATES AND METHACRYLATES

Thomas H. Shepherd, Hopewell, and Francis E. Gould, Princeton, N.J., assignors to National Patent Development Corporation, New York, N.Y.

No Drawing. Continuation-in-part of applications Ser. No. 567,856, July 26, 1966, Ser. No. 650,259, June 30, 1967, and Ser. No. 654,044, July 5, 1967. This application July 10, 1968, Ser. No. 743,626

Int. Cl. A61k 7/00; 7/02, 7/10

U.S. Cl. 424-47

12 Claims

Cosmetic preparations such as powders, and the like are prepared by adding a powdered hydrophilic acrylate or methacrylate polymer to the selected powdered cosmetic ingredients. The hydrophilic polymer can be cross-linked.

3,574,823

DENTIFRICE CONTAINING VISIBLE AGGLOMERATED PARTICLES OF POLISHING AGENTS

Francis D. Roberts, Millington, and John J. Steinke III, Somerville, N.J., assignors to Colgate-Palmolive Company, New York, N.Y.

No Drawing. Filed Aug. 5, 1968, Ser. No. 750,028

Int. Cl. A61r 7/16

U.S. Cl. 424-49

15 Claims

Dentifrice containing visible, palpable and esthetically pleasing substantially water-insoluble agglomerated particles of polishing agents. The particles are reduced to smaller impalpable size by mild mechanical action such as by toothbrushing. The agglomerates include water-insoluble polishing agent such as insoluble sodium metaphosphate or dicalcium phosphate and may also contain a binding agent such as gum acacia, gelatin, starch, carboxymethyl cellulose or the like.

3,574,824

ANHYDROUS TOOTHPASTE FORMULATION

James Echeandia, Richmond, Va., Yashvant Kapadia, Lafayette, Ind., Howard Rubin, Belleville, N.J., and Jacques Tossounian, Bryn Mawr, Pa., assignors to Warner-Lambert Pharmaceutical Company, Morris Plains, N.J.

No Drawing. Filed May 3, 1968, Ser. No. 726,547

Int. Cl. A61k 7/16

U.S. Cl. 424-50

2 Claims

An anhydrous toothpaste base is prepared using the following ingredients: (1) an oil having a viscosity of 100 to 300 centipoises, such as mineral oil, light liquid petrolatum thickened to the necessary viscosity, or an antioxidant stabilized vegetable oil; (2) a combination of polyethylene glycols having a viscosity of 2200 to 3400 centipoises with molecular weights ranging from 550 to 6000; (3) a non-toxic, non-ionic emulsifier which is a mixture of glycerides of C₁₂ to C₁₇ fat-forming fatty acids; (4) at least one binding agent selected from polyvinylpyrrolidone having an average molecular weight of 40,000 and a colloidal magnesium aluminum silicate; and (5) a compound having a negative heat of hydration which can be a hexahydric alcohol such as mannitol or inositol. To this base, 30% to 70% of an abrasive may be added. The abrasive may be aluminum hydrate and/or calcium sulfate and can contain a small amount of aluminum silicate. Dentrifrice additives such as enzymes, bleaching agents which achieve whitening and brightening effects, fluorides, and the like, which are incompatible with standard hydrous toothpaste formulations will remain stable and active when added to this anhydrous toothpaste base. Taste, consistency and foaming properties of the paste are equivalent to hydrous toothpaste formulations.

3,574,825

SUNSCREEN COMPOSITIONS CONTAINING POLYMETHYLATED MUCONIC ACIDS

Oscar L. Norman, Wilmington, Del., assignor to Sun Oil Company, Philadelphia, Pa.

No Drawing. Filed Dec. 18, 1967, Ser. No. 691,152

Int. Cl. A61l 23/00

U.S. Cl. 424-59

12 Claims

A composition for application to the human skin for protection against erythemogenic radiation which comprises a cosmetic base carrier containing 1.0 to 15.0 weight percent of certain polymethylated muconic acids or their hydrocarbyl esters, said acids being selected from the group consisting of α,α' -dimethylmuconic acid, α,β' -dimethylmuconic acid, α,α',β -trimethylmuconic acid, α,β,β' -trimethylmuconic acid, and $\alpha,\alpha',\beta,\beta'$ -tetramethylmuconic acid, and to methods of preparing said compositions.

3,574,826

HYDROPHILIC POLYMERS HAVING VITAMINS ABSORBED THEREIN

Thomas H. Shepherd and Francis E. Gould, Princeton, N.J., assignors to National Patent Development Corporation, New York, N.Y.

No Drawing. Continuation-in-part of applications Ser. No. 567,856, July 26, 1966, Ser. No. 650,259, June 30, 1967, and Ser. No. 654,044, July 5, 1967. This application Feb. 27, 1968, Ser. No. 708,517

Int. Cl. A61k 15/00

U.S. Cl. 424-81

11 Claims

A hydrophilic cross-linked polymeric composition having vitamins absorbed therein.

The hydrophilic cross-linked polymer is prepared by admixing in the solvent-free state a major amount of a water-soluble polymerizable monomer of an olefinic acid having at least one substituted hydrophilic functional group with a minor amount of a free radical, vinyl polymerization catalyst in an anaerobic atmosphere and

heating from ambient temperatures to about 80° C. until the said monomer is water-insoluble, cooling said resulting mixture to ambient temperature and adding a minor amount of a polymerizable diester of one of said olefinic acids having at least two esterifiable hydroxy groups along with an additional minor amount of one of said catalysts sufficient to form a liquid casting syrup adapted to be polymerized in situ. Powders which may be produced from the resulting product are mixed with selected vitamins which can be reconstituted in solution at will. Also, because of the compact form of the vitamin carrying powders encapsulation may be performed to prevent deterioration of the vitamin component.

3,574,827

OINTMENT BASE COMPOSITION

Alan Beerbower, Scotch Plains, N.J., assignor to Esso Research and Engineering Company
No Drawing. Filed Dec. 29, 1966, Ser. No. 605,557
Int. Cl. A61k 9/06, 7/00

U.S. Cl. 424—83 5 Claims
Unctuous ointment bases for topical application are prepared by gelling synthetic or natural white oils with polypropylene or ethylene-propylene copolymer of 80 to 95 wt. percent isotactic content.

3,574,828

METHOD OF OBTAINING ANTI-LYMPHOMA ANTIBODIES

Julia McCain Lampkin-Hibbard, Oklahoma City, Okla., assignor of fractional part interest to Roderick Knott, Miami, Fla.
Continuation of application Ser. No. 261,687, Feb. 28, 1963. This application July 14, 1967, Ser. No. 653,576
Int. Cl. A61k 27/00

U.S. Cl. 424—85 3 Claims
This invention describes the method of obtaining anti-lymphoma antibodies which comprises isolating nucleoproteins from a lymphosarcoma, introducing the nucleoproteins into a host, withdrawing blood from the host, and obtaining antibodies from the blood.

3,574,829

METHOD OF IMPROVING THE CONCEPTION RATE IN EWES

Jack F. Wagner and Edward L. Veenhuizen, Greenfield, Ind., assignors to Eli Lilly and Company, Indianapolis, Ind.
No Drawing. Continuation-in-part of application Ser. No. 541,086, Apr. 8, 1966. This application Aug. 6, 1968, Ser. No. 750,453
Int. Cl. A61k 17/00, 17/06

U.S. Cl. 424—100 8 Claims
The conception rate in ewes is improved by the administration of a gonadotropin after onset of estrus and insemination.

3,574,830

PROCESS FOR INHIBITING THE TRANSFER OF ANTIBIOTIC RESISTANCE DETERMINANTS IN BACTERIA

Joanne Roeser, Kalamazoo, Mich., assignor to The Upjohn Company, Kalamazoo, Mich.
No Drawing. Continuation-in-part of application Ser. No. 749,584, Aug. 2, 1968. This application Oct. 17, 1968, Ser. No. 768,502
Int. Cl. A61k 21/00

U.S. Cl. 424—181 7 Claims
Process for inhibiting the transfer of antibiotic resistance determinants from donor bacteria to recipient bacteria by the use of an effective amount of a lincomycin antibiotic.

3,574,831

THERAPEUTIC HEPARIN-SODIUM TAUROCHOLATE COMPOSITIONS

Robert Henry Engel and Stephen Joseph Riggi, Suffern, N.Y., assignors to American Cyanamid Company, Stamford, Conn.
No Drawing. Filed May 29, 1968, Ser. No. 732,854
Int. Cl. A61r 27/00

U.S. Cl. 424—183 3 Claims
A composition capable of absorption through walls of the alimentary canal and producing heparin-like effects comprising heparin and at least about .25 part, by weight of sodium taurocholate per part of heparin.

3,574,832

THERAPEUTIC HEPARIN-SURFACTANT COMPOSITIONS

Robert Henry Engel and Stephen Joseph Riggi, Suffern, N.Y., assignors to American Cyanamid Company, Stamford, Conn.
No Drawing. Filed May 29, 1968, Ser. No. 732,855
Int. Cl. A61k 17/18

U.S. Cl. 424—183 5 Claims
A composition capable of absorption through the walls of the alimentary canal and producing heparin-like effects, comprising heparin and more than about .001 part by weight per part of heparin of a surfactant selected from the group consisting of sodium lauryl sulfate, dioctyl sodium sulfosuccinate, sodium hexyl sulfate, sodium lauryl sulfonate, sodium cetyl sulfonate and mixtures thereof.

3,574,833

USE OF TRIMETHOPRIM AND SULFALENE AS ANTIMALARIALS

John D. Arnold, Kansas City, Mo., and Daniel C. Martin, Overland Park, Kans., assignors to the United States of America as represented by the Secretary of the Army
No Drawing. Filed Oct. 29, 1968, Ser. No. 771,636
Int. Cl. A61k 27/00

U.S. Cl. 424—229 3 Claims
The discovery that trimethoprim can be used alone or in combination with sulfaleone to treat and cure strains of malaria that are resistant to known antimalarials, without any undesirable toxic side-effects.

3,574,834

MEDICINAL SOPORIFIC COMPOSITION

Samuel Kuna, Westfield, N.J., assignor to Merck & Co., Inc., Rahway, N.J.
No Drawing. Filed Apr. 30, 1969, Ser. No. 820,669
Int. Cl. A61k 27/00

U.S. Cl. 424—235 3 Claims
A soporific pharmaceutical composition containing from 160 to 2600 mg. of salicylamide and from 1/3 to equal that amount (preferably 1/2) of glyceryl guaiacolate, and if desired, an effective amount of a drowsiness inducing antihistamine.

3,574,835

USE OF NITROALKYL ACID SULFATES AND NEUTRALIZATION PRODUCTS THEREOF AS MICROBIOCIDES

Richard E. Berkley, Edmonton, Alberta, Canada, and Carl O. Tant, Houston, Tex., assignors to Nalco Chemical Company, Chicago, Ill.
No Drawing. Continuation-in-part of application Ser. No. 411,095, Nov. 13, 1964. This application June 3, 1966, Ser. No. 554,979
The portion of the term of the patent subsequent to May 13, 1966, has been disclaimed
Int. Cl. A01n 9/00

U.S. Cl. 424—244 17 Claims
Nitroalkyl acid sulfates and neutralization products thereof are used as microbicides.

3,574,836

COMPOSITIONS COMPRISING HYDROCHLOROTHIAZIDE AND 3,4-DIHYDRO-2(1H)ISOQUINOLINE CARBOXAMIDE

William Bernard Abrams, South Orange, and Sven Evert Svenson, North Caldwell, N.J., assignors to Hoffmann-La Roche Inc., Nutley, N.J.
No Drawing. Continuation-in-part of abandoned application Ser. No. 418,529, Dec. 15, 1964. This application Nov. 26, 1968, Ser. No. 779,261
Int. Cl. A61k 27/00

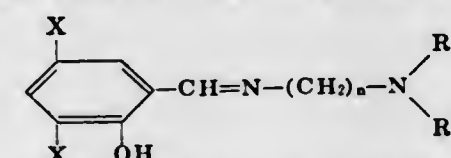
U.S. Cl. 424—246 10 Claims
Compositions are described which contain 6-chloro-3,4-dihydro-7-sulfamyl-2H-1,2,4-benzothiadiazine 1,1-dioxide, or a non-toxic alkali metal salt thereof, and 3,4-dihydro-2(1H)-isoquinoline carboxamide, or an acid addition salt thereof, as the active ingredients. The composition is useful in the treatment of the symptoms of hypertension.

3,574,837

NEW SCHIFF'S BASES, AND THEIR USE AS AGRICULTURAL PESTICIDES

Henri Pacheco, Bron, and Lucien Cronenberger, Daniel Pilon, and Jean Thiolliere, Lyon, France, assignors to PEPRO-Societe pour le Developpement et la Vente de Specialites Chimiques, Lyon, France
No Drawing. Filed May 21, 1968, Ser. No. 730,935
Claims priority, application France, May 26, 1967, 48,715
Int. Cl. C07c 119/10

U.S. Cl. 424—248 9 Claims
New Schiff's bases having the general formula



wherein X is halogen, n is 2 or 3, and R' and R'' are identical or different alkyl radicals which may also form a heterocycle with the nitrogen atom and may contain another heteroatom of O, N or S; and the quaternary salts and metal chelates thereof; and their use as fungicides.

3,574,838

6-SULFAMOYL - 2,3 - DICHLOROQUINOXALINE COMPOSITIONS AND METHOD OF TREATING GASTRIC HYPERACIDITY

William A. Bolhofer, Frederick, and John J. Baldwin, Lansdale, Pa., assignors to Merck & Co., Inc., Rahway, N.J.
No Drawing. Filed Dec. 28, 1966, Ser. No. 605,207
Int. Cl. A61k 27/00

U.S. Cl. 424—250 14 Claims
There is disclosed a method of treating gastric hyperacidity with 2,3-dichloroquinoxalines wherein the 6-position of the quinoxaline ring contains a sulfamoyl or substituted sulfamoyl radical and the 7-position may be substituted with chlorine, a loweralkyl or loweralkoxy substituent. Formulations containing these substances as active ingredients are also disclosed.

3,574,839

BASICALLY SUBSTITUTED ALKOXY ANTHRANILAMIDES, THEIR CORRESPONDING 2-NITRO COMPOUNDS, AND DERIVATIVES THEREOF

Edgar S. Schipper, Highland Park, and Paul Levitan, West New York, N.J., assignors to Shulton, Inc., Clifton, N.J.
No Drawing. Original application Oct. 11, 1966, Ser. No. 585,748, now Patent No. 3,488,352, dated Jan. 6, 1970. Divided and this application May 16, 1969, Ser. No. 842,056
Int. Cl. A61v 27/00

U.S. Cl. 424—250 6 Claims
Certain N-piperazino-o-nitro- and o-amino-anthranilamides are disclosed. The compounds are useful in antipsychotic applications and as sedatives and tranquilizers.

3,574,840

ANALGESIC, ANTITHERMIC AND ANTI-INFLAMMATORY TABLETS AND METHODS WITH 2-PHENYL - 7 - BROMO-QUINOLINE - 4 - CARBOXYLIC ACID OR SALTS THEREOF

Eugene Riviere, Issy-les-Moulineaux, and Roger Lucien Debric, Brenouille, France, assignors to Uguine Kuhlmann, Paris, France
No Drawing. Filed Oct. 29, 1968, Ser. No. 771,646
Claims priority, application France, Oct. 31, 1967, 126,509
Int. Cl. A61v 27/00

U.S. Cl. 424—258 4 Claims
The present invention provides a process for the treatment of algic, thermic and inflammatory manifestations in mammals which comprises administering to the mammal 2 - phenyl - 6 - bromo - quinoline-4-carboxylic acid or the sodium or magnesium salt thereof. The present invention also provides a composition comprising 2-phenyl - 6 - bromo - quinoline - 4 - carboxylic acid or the sodium or magnesium salt thereof and a pharmaceutically acceptable carrier.

3,574,841

FUNGICIDAL METHODS USING SUBSTITUTED NITROPYRIDINES

Patrick Robert Driscoll, Fords, N.J., assignor to Mobil Oil Corporation
No Drawing. Filed Mar. 5, 1968, Ser. No. 710,672
Int. Cl. A01n 9/00

U.S. Cl. 424—263 6 Claims
Compositions of substituted mono- and di-nitropyridines on a carrier therefor are effective in combatting fungi. Some are effective against plant fungi, while others are effective against soil fungi. Some are effective against both types.

3,574,842

COMPOSITIONS OF 4-(1,2,4-OXADIAZOLE-3 OR 5-YL)PYRIDINIUM SALTS AND METHOD OF LOWERING BLOOD SUGAR LEVELS WITH SAME

Victor John Bauer, Montvale, N.J., William Joseph Fanshawe, Pearl River, N.Y., and Sidney Robert Saffir, River Edge, N.J., assignors to American Cyanamid Company, Stamford, Conn.
No Drawing. Continuation-in-part of application Ser. No. 676,706, Oct. 20, 1967. This application Nov. 10, 1969, Ser. No. 875,529
Int. Cl. A61k 27/00

U.S. Cl. 424—263 10 Claims
Compositions containing quaternary 1,2,4-oxadiazolylpyridinium salts are described along with methods of using the same. These active components show hypoglycemic activity evidenced by their ability to lower blood sugar levels.

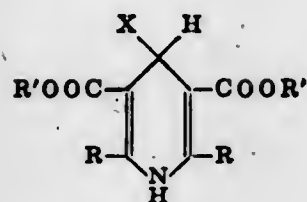
3,574,843

1,4-DIHYDROPYRIDINE DERIVATIVES FOR THE TREATMENT OF ANGINA PECTORIS

Friedrich Bossert, Wuppertal-Elberfeld, and Wulf Vater, Opladen, Germany, assignors to Farbenfabriken Bayer Aktiengesellschaft, Leverkusen, Germany
No Drawing. Original application Mar. 14, 1968, Ser. No. 712,909, now Patent No. 3,488,359, dated Jan. 6, 1970. Divided and this application May 29, 1969, Ser. No. 830,218
Claims priority, application Germany, Mar. 20, 1967, F 51,878
Int. Cl. A61k 27/00

U.S. Cl. 424—266 8 Claims
Pharmaceutical compositions for the treatment or prophylactic prevention of coronary insufficiency and

angina pectoris in which the active therapeutic agent is a 1,4-dihydropyridine derivative of the formula:



wherein:

R is hydrogen or alkyl of 1 to 3 carbon atoms, R' is lower alkoxy lower alkyl, hydroxy lower alkyl, furfuryl or tetrahydrofurfuryl, and X is pyridyl, phenyl, or nitrophenyl,

or a pharmaceutically acceptable non-toxic salt thereof in combination with a pharmaceutically acceptable non-toxic carrier. Said 1,4-dihydropyridines or pharmaceutically acceptable non-toxic salts thereof are administered to humans.

3,574,844

4-[4(OR 5)-IMIDAZOLYMETHYL]-OXAZOLES

Joseph Francis Gardocki, Doylestown, Pa., Edward Ervin Smitsman, Lawrence, Kans., and Joseph Albert Meschino, North Wales, Pa., assignors to McNeil Laboratories, Inc.

No Drawing. Filed Mar. 12, 1969, Ser. No. 806,679

Int. Cl. A61k 27/00

U.S. Cl. 424—272 10 Claims
4-[4(or 5)-imidazolymethyl]-oxazole derivatives and compositions useful for their analgesic activity, and method of using same.

3,574,845

ANTHELMINTIC COMPOSITIONS AND METHODS EMPLOYING ESTERS OF BENZIMIDAZOLYL CARBAMIC ACIDS AND THEIR THIO ANALOGS

Phillip Paul Actor, Phoenixville, and Joseph Frank Pagano, Paoli, Pa., assignors to Smith Kline & French Laboratories, Philadelphia, Pa.

No Drawing. Continuation-in-part of applications Ser. No. 387,524, Aug. 4, 1964, and Ser. No. 516,120, Dec. 23, 1965. This application July 1, 1966, Ser. No. 562,117

Int. Cl. A61k 27/00

U.S. Cl. 424—273 16 Claims
Anthelmintic compositions comprising esters of benzimidazolyl carbamic acids, and their thio analogs, both of which may be optionally substituted on the benzene ring, are disclosed. A process for their preparation involves reacting cyanamide in a suitable organic solvent with the appropriate alkyl substituted haloformate to form a cyanocarbamate, followed by the addition of an o-phenylenediamine to yield the described anthelmintic agents.

3,574,846

STABILIZATION OF HEXAMETHYLDITIN WITH 2,6-DITERTIARY-BUTYL-4-METHYL PHENOL

Herbert Q. Smith, King of Prussia, and Edward Everett Ivy, Devon, Pa., assignors to Pennwalt Corporation

No Drawing. Filed Mar. 11, 1968, Ser. No. 711,834

Int. Cl. A01n 9/00

U.S. Cl. 424—288 6 Claims
A stabilized insecticidal composition comprising hexamethylditin and a stabilizing amount of 2,6-ditertiary-butyl-4-methyl phenol.

3,574,847

NEW ALKYL 2-METHYLPROPENYL KETOXIME CARBAMATES AS INSECTICIDES

Alan R. Friedman, Portage, Mich., assignor to The Upjohn Company, Kalamazoo, Mich.

No Drawing. Original application Dec. 22, 1966, Ser. No. 603,752, now Patent No. 3,454,642. Divided and this application Feb. 17, 1969, Ser. No. 800,004

Int. Cl. A01n 9/20

U.S. Cl. 424—300 6 Claims

New alkyl 2-methylpropenyl ketoxime carbamates are active against insects, e.g., houseflies, boll weevils, Mexican bean beetles, and house crickets—also other insect pests. The α - or azomethine carbon has a methyl, an ethyl, a propyl, or an isopropyl substituent. The carbamate nitrogen may be unsubstituted or mono-lower-alkyl substituted. The anti-methyl syn-2-methylpropenyl isomer appears to be more active than the anti-podal syn-methyl anti-2-methylpropenyl isomer.

3,574,848

METHODS OF KILLING FUNGI WITH THE DIESTER OF 2,2,4-TRIMETHYLPENTANEDIOL-1,3

Harald Schneggelberger, Hilden-Rhineland, and Horst Bellingner, Dusseldorf, Germany, assignors to Henkel & Cie GmbH, Dusseldorf-Holthausen, Germany

No Drawing. Filed June 11, 1968, Ser. No. 735,981

Claims priority, application Germany, June 22, 1967, H 63,078

Int. Cl. A01n 9/24

U.S. Cl. 424—311 4 Claims

Fungicidal compositions and method of killing fungi in which the active ingredient is a diester of 2,2,4-trimethylpentanediol-1,3 and aliphatic carboxylic acids of 2 to 12 carbon atoms.

3,574,849

BIS-(p-CHLOROPHENOXY)ACETIC ACID IN COMPOSITIONS AND METHODS FOR TREATING HYPERCHOLESTEREMIA

Rudolf G. Griot, Florham Park, N.J., assignor to Sandoz-Wander, Inc., Hanover, N.J.

No Drawing. Continuation-in-part of application Ser. No. 560,874, June 27, 1966. This application Nov. 13, 1967, Ser. No. 682,647

Int. Cl. A61k 27/00

U.S. Cl. 424—317 12 Claims

This disclosure relates to derivatives of acetic acid, e.g., bis-(p-chlorophenoxy)acetic acid isopropyl ester. These compounds are useful as hypocholesteremics/hypolipemics.

3,574,850

MEDICAMENT HAVING PARTICULARLY AN ANTIFUNGAL BACTERICIDAL AND BACTERIOSTATIC ACTIVITY

Claude R. Gullon, Paris, France, assignor to Expanscience, Courbevoile, Hauts-de-Seine, France

No Drawing. Continuation of application Ser. No. 704,946, Feb. 12, 1968. This application Oct. 7, 1969, Ser. No. 871,753

Claims priority, application France, Oct. 6, 1964, 990,499

Int. Cl. A61k 27/00

U.S. Cl. 424—319 1 Claim

An antiseptic composition comprising an aqueous solution of dodecyloxypropylamine- β -butyric acid, dodecylaminopropylamine- β -butyric acid and an alkyl dimethyl

benzyl ammonium chloride, said alkyl having from 8 to 18 carbon atoms, in a weight ratio of 1 to 1 to 0.5, in a pharmacological solvent medium. The antiseptic composition of the invention has an antifungal, bactericidal and bacteriostatic activity.

3,574,851

FUNGICIDAL METHOD EMPLOYING NEW QUATERNARY AMMONIUM HALIDES

Asher A. Hyatt, Lexington, Mass., assignor to Monsanto Research Corporation, St. Louis, Mo.

No Drawing. Original application Dec. 3, 1965, Ser. No. 531,320, now Patent No. 3,390,178, dated June 25, 1968. Divided and this application Dec. 20, 1967, Ser. No. 721,893

Int. Cl. A01n 9/20

U.S. Cl. 424—329 2 Claims

A method of controlling soil fungi employing certain new nitroso substituted aryl derivatives of trialkyl ammonium halides.

3,574,852

TREATING DEPRESSION WITH THE N-OXIDE OF N-(3'-DIMETHYLAMINO PROPYL)-IMINODIBENZYL

Hjarne Dyrsting, Virum, and Jorgen Brix Pedersen, Hvidovre, Denmark, assignors to A/S Dumex (Dumex Ltd.), Copenhagen, Denmark

No Drawing. Continuation-in-part of application Ser. No. 581,729, Sept. 26, 1966, which is a continuation-in-part of application Ser. No. 267,839, Mar. 25, 1963. This application Aug. 11, 1969, Ser. No. 849,215

Claims priority, application Great Britain, Mar. 27, 1962, 11,680/62; Feb. 5, 1963, 4,670/63

Int. Cl. A61k 27/00

U.S. Cl. 424—330 5 Claims
The compound, N-oxide of N-(3'-dimethylaminopropyl)-iminodibenzyl and the pharmaceutically acceptable, non-toxic acid addition salts thereof possessing antidepressant activity and reduced untoward side effects, and which may be administered to animals for such purposes.

3,574,853

COMPOSITION AND METHOD OF REDUCING SERUM CHOLESTEROL WITH THIOBISCREOLS

James W. Barnhart, Indianapolis, Ind., assignor to The Dow Chemical Company, Midland, Mich.

No Drawing. Filed May 11, 1967, Ser. No. 637,633

Int. Cl. A61k 27/00

U.S. Cl. 424—337 10 Claims
Methods useful for lowering serum cholesterol in animals comprising administration to the animal of a hypocholesteremic amount of a thiobis(butylcresol) compound such as α,α' -thiobis(2,6-di-tert-butyl-p-cresol), and compositions to be employed in practicing the method.

3,574,854

METHOD FOR SOOTHING THE SKIN WITH A CREAM CONTAINING SODIUM CHLORIDE

Francois J. Bossard, 33 Boulevard Malesherbes, Paris, France

No Drawing. Filed Mar. 20, 1967, Ser. No. 624,183

Claims priority, application France, Mar. 22, 1966, 54,428

Int. Cl. A61k 71/00

U.S. Cl. 424—357 1 Claim
A process for soothing the skin with a cosmetic consisting of a paste or cream comprising a hypertonic aqueous solution of sodium chloride in a colloidal silica carrier.

3,574,855

SYNERGISTIC WOOD PRESERVATIVE COMPOSITIONS

Frederick Leroy Brown, Midland, Mich., assignor to The Dow Chemical Company, Midland, Mich.

No Drawing. Filed Sept. 2, 1966, Ser. No. 576,861

Int. Cl. A01n 9/22, 9/26

U.S. Cl. 424—263 3 Claims

Synergistic mixtures of 96 to 25 weight parts of (A) pentachlorophenol or an alkali metal salt thereof and 4 to 75 weight parts of (B) 2,3,5-trichloro-4-(methylsulfonyl)pyridine or 2,3,5,6-tetrachloro-4-(methylsulfonyl)pyridine. The mixtures are useful in protecting wood against decay, degradation and staining caused by microorganisms, and give better protection than either of the components when employed alone.

3,574,856

METHOD OF PREVENTING AND CONTROLLING COCCIDIOSIS WITH SYDNONE DERIVATIVES

Philip M. Weintraub, Charles O. Baughn, Jr., and Ronald E. Bambury, Ashland, Ohio, assignors to Richardson-Merrell Inc., New York, N.Y.

No Drawing. Filed Oct. 17, 1968, Ser. No. 768,500

Int. Cl. A61k 27/00

U.S. Cl. 424—263 2 Claims

The mortality of chicks which become infected with *Eimeria tenella* is reduced when 3-arylsydones are incorporated in their diets in amounts of from 10 to 400 parts per million by weight. Compositions containing these 3-arylsydones and methods of using them in preventing and controlling coccidiosis are disclosed.

3,574,857

ANTILIPIDEMIC METHODS USING GLUTAMIC ACID, THREONINE AND PROLINE

William H. Cevallos, Devon, Pa., assignor to Smith Kline & French Laboratories, Philadelphia, Pa.

No Drawing. Filed Apr. 1, 1968, Ser. No. 717,943

Int. Cl. A61k 27/00

U.S. Cl. 424—319 5 Claims

Methods of producing hypolipidemic activity in subjects having abnormally high levels of lipids (cholesterol) in the blood stream using a combination of glutamic acid and threonine administered internally in quantities greater than present in the subject's normal diet. Proline may also be added.

3,574,858

MICROBIOCIDAL FOR CONTROLLING BACTERIA IN WATER

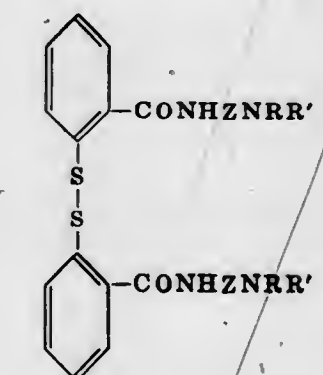
Gert P. Volpp, Princeton, N.J., assignor to FMC Corporation, New York, N.Y.

No Drawing. Filed July 9, 1968, Ser. No. 743,296

Int. Cl. A01n 9/12

U.S. Cl. 424—324 6 Claims

Slime formation in paper pulp is controlled by adding to pulp liquors a compound of the formula



wherein each of R and R' represent lower alkyl groups and Z is an alkylene group of 2 to 7 carbon atoms.

3,574,859
PROCESS FOR THE TREATMENT OF
HYPERTROPHIED GUMS

Carl M. Kostl, 704 Foxhall Road,
 Bloomfield Hills, Mich. 48013

No Drawing. Continuation-in-part of application Ser. No. 742,535, July 5, 1968. This application June 2, 1969, Ser. No. 829,793

Int. Cl. A61k 5/00, 7/16, 27/00

U.S. Cl. 424-330

8 Claims

A process and composition for the treatment of hypertrophied and hyperplastic gums; alkaloids such as sympathomimetic amines which are vasoconstrictors, applied to the gums as a rinse or coating, for instance by an atomizer, by swabbing or through a toothpaste containing containing the same, for effective vasoconstriction of the gums.

3,574,860
MEDICAMENTS COATED WITH SODIUM ETHYL
CELLULOSE SULFATE

Richard R. Crawford and Peter M. Grant, both of 755 Ridge Road W. 14615, and Martin E. Rowley and Walter D. Slowig, both of 1669 Lake Ave. 14614, all of Rochester, N.Y.

No Drawing. Filed Mar. 25, 1966, Ser. No. 544,335

Int. Cl. A61k 27/00

U.S. Cl. 424-362

3 Claims

A medicament is surrounded by a layer of sodium ethyl cellulose sulfate, with or without a different cellulose derivative and/or a plasticizer. This new composition provides a coating which is glossy, smooth and hard, which is less bulky than sugar, and which disintegrates rapidly in gastric fluids of the stomach. The rate of disintegration in gastric fluids can be controlled by tailoring compositions with different percentages of ingredients for different rates of disintegration.

GENERAL AND MECHANICAL

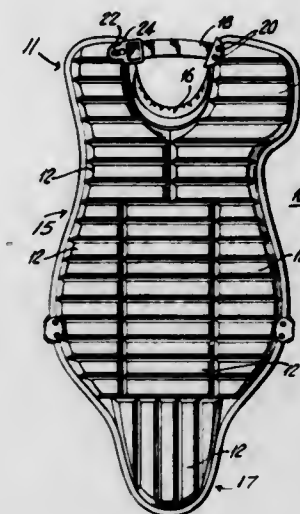
3,574,861
CHEST AND THROAT PROTECTOR
 Creighton J. Hale, Williamsport, Pa., assignor to Little League Baseball Inc.

Filed July 12, 1968, Ser. No. 744,426

Int. Cl. A41d 13/00

U.S. Cl. 2-2

6 Claims



The chest protector is provided with a collar portion which is designed to conform to the outline of the wearer's throat. Rising from the collar portion is a throat protector comprising a padded segment designed to cover the throat of the wearer. A strap which is detachable at at least one end extends across the rearward open end of the collar portion so as to prevent the protector from sliding downward while in use and thus exposing the throat of the wearer.

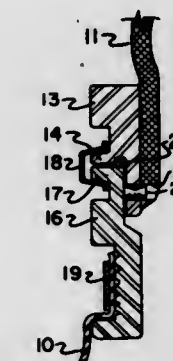
3,574,862
CONNECTOR FOR DIVER'S HELMET
 Richard F. Jones, Santa Barbara, Calif., assignor to Agonic Engineering, Inc., Santa Barbara, Calif.

Filed May 31, 1968, Ser. No. 733,424

Int. Cl. A62b 17/00

U.S. Cl. 2-2.1

5 Claims



A ring is fitted over the neck of a diver's suit, and the rubber suit of the diver is connected to the bottom part with a watertight joint, and a removable helmet is disposed on the upper part of the ring with a watertight joint. A band of V-shaped cross section holds the helmet to the ring, and a manually operated latch mechanism tightens the band to hold the helmet to the neck ring or loosens the band for removal of the helmet. The latch has over-the-center locking, and in addition, has a double safety catch to keep it from being accidentally opened if the latch is subjected to blows or strikes equipment under water.

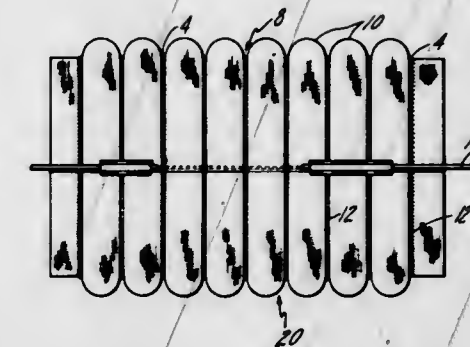
3,574,863
CONVOLUTE SECTION
 John J. Korabowski, Springfield, Mass., and Edwin G. Vail, Simsbury, Conn., assignors to United Aircraft Corporation, East Hartford, Conn.

Filed Dec. 20, 1968, Ser. No. 785,617

Int. Cl. A62b 17/00

U.S. Cl. 2-2.1

1 Claim



A convolute section for use in a pressure suit has adjustable root cords slidably attached to the restraint cloth, by stitching, preferably by zigzag stitching.

3,574,864
DISPOSABLE HOSPITAL PATIENT'S GOWN WITH
COHESIVE

Theodore Bradley, 147 Eldorado St., Monterey, Calif. 93940
 Continuation-in-part of application Ser. No. 534,903, Mar. 16, 1966, now Patent No. 3,451,062. This application Mar. 12, 1969, Ser. No. 828,407

Int. Cl. A41d 9/00

U.S. Cl. 2-114

4 Claims



Disposable examination gown featuring a single sheet of disposable material, cutout neck area, slits defining arm openings, a cohesive-adhesive of low peel adhesive adherence and high shear adhesive adherence applied to opposed areas of the sheet at the top edge adjacent the neck area and the sides of the sheet as a means for separating and reattaching the top edge of the sheet and the sides of the sheet about the patient's body.

3,574,865
PROSTHETIC SUTURELESS HEART VALVE
 Ronald C. Hamaker, Royal Oak, Mich., assignor to Michigan Instruments, Inc., Grand Rapids, Mich.

Filed Aug. 8, 1968, Ser. No. 751,210

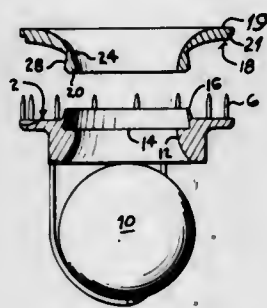
Int. Cl. A61f 1/22

U.S. Cl. 3-1

8 Claims

This disclosure relates to a prosthetic sutureless heart valve wherein a two-piece snapping is employed in fastening the

valve to the heart. The valve has an annular base which contains a check valve and a plurality of pins which pierce the tissue around the valve. The annular snapping fits into the



within said water tank, so as to encompass the float and ensure cutting off of the water supply if the discharge valve remains open in the water tank.

3,574,868

DRAINAGE BAG TUBE STABILIZER

Daniel M. McWhorter, Arlington Heights, Ill., assignor to The Kendall Company, Boston, Mass.

Filed May 20, 1968, Ser. No. 730,302

Int. Cl. A61g 9/00

U.S. Cl. 4-110

1 Claim

A drainage bag for collecting urine is provided with a plastic tab connected to its upper edge, said tab being provided with an aperture through which the drainage tube is threaded.

3,574,869

SURROUND FOR CAST IRON TUB OR SHOWER BASE

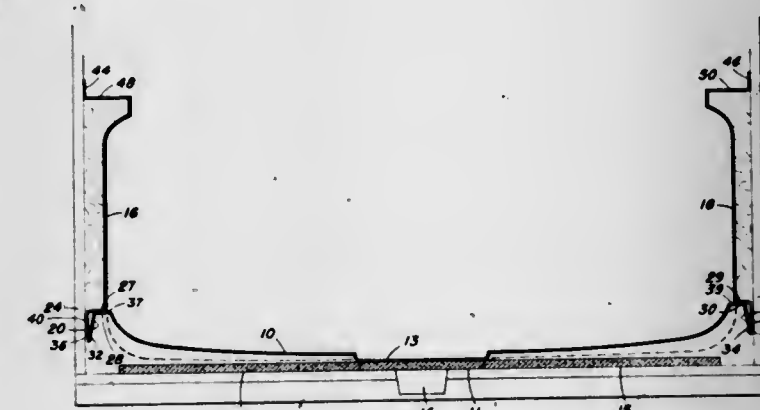
Norman Van Skyhawk, Salt Lake City, Utah, assignor to American Standard, Inc., New York, N.Y.

Filed June 24, 1968, Ser. No. 739,382

Int. Cl. A47k 3/22

U.S. Cl. 4-148

8 Claims



base near the pins to hold the valve and the tissue intact. A smooth, continuous surface is provided for passage of the blood through the valve.

3,574,866

SELECTIVE CONTROL FLUSH ACTION FOR TOILETS

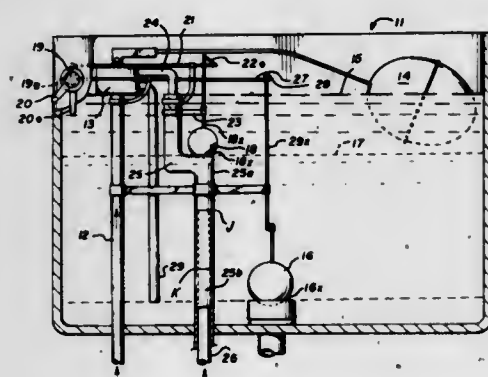
William O. Sievers, 512 Milwaukee St., Denver, Colo.

Filed Aug. 27, 1969, Ser. No. 853,385

Int. Cl. E03d 3/00

U.S. Cl. 4-34

2 Claims



Watersaving flush valve controls for toilets having two different capacity discharges from a reservoir. Said control having one opening and valve for lesser capacity outlet when lesser quantity discharge is required and another for using a greater capacity outlet when full discharge is required. Each control is selective and will terminate discharge action after selected discharge.

3,574,867

CONTROL FOR A WATER CLOSET

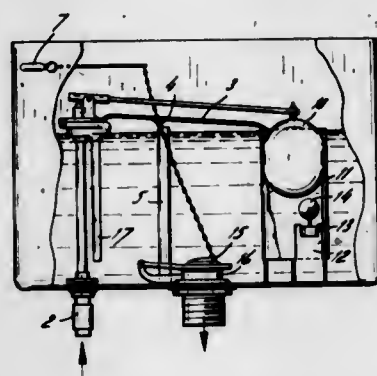
Frank D. Biniores, 7817 Arch St., Little Rock, Ark.

Filed Dec. 16, 1969, Ser. No. 885,554

Int. Cl. E03d 1/22, 1/00

U.S. Cl. 4-41

6 Claims



Water closet supply tanks of the type embodying a float regulating the water supply, according as the level of water rises in said tank. Particularly, a control tank positioned

This invention relates to a plastic shower surround forming a watertight shower enclosure around a separate tub or shower base made from cast iron, sheet metal or other material, and to a method of making and shipping the components thereof. This enclosure can be shipped knocked down and when assembled improved watertight self-locking snap joints are locked together into the sections which make the shower and tub or shower base a unitary structure.

3,574,870

TANK STRUCTURE

Robert Pitkin Orellind, Wilmette, Ill., assignor to Kaiser Aluminum & Chemical Corporation, Oakland, Calif.

Filed May 27, 1968, Ser. No. 732,260

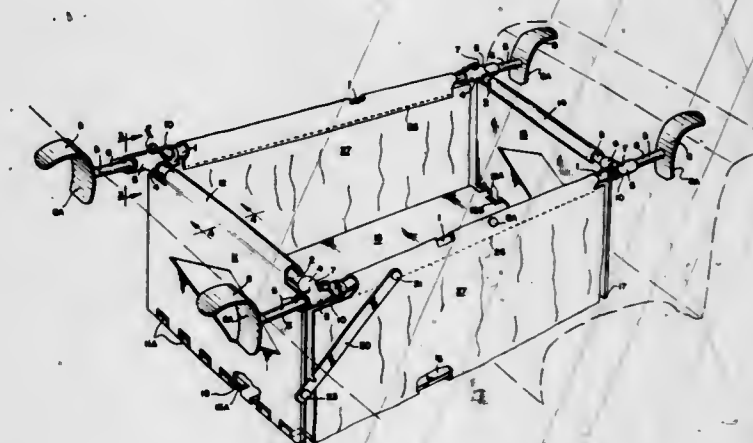
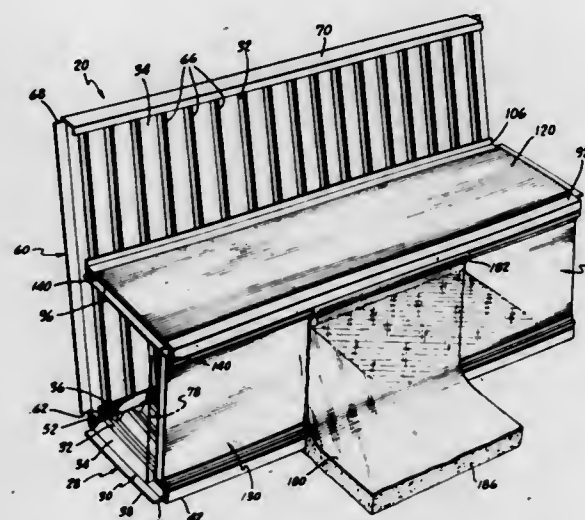
Int. Cl. E04h 3/18

U.S. Cl. 4-172.19

12 Claims

A lightweight, strong tank structure, primarily suited for use as an aboveground swimming pool, wherein the wall

surrounding the liquid-containing area is made principally of semirigid material hingedly interconnected at their coterminous ends with the front and rear walls being



corrugated panels joined by extrusions and with the corrugations of the panels disposed transversely of the panels.

3,574,871

SAFETY LITTER

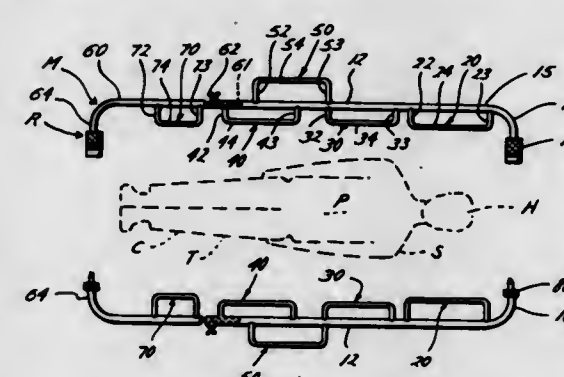
William L. Greene, 419 29 St., Beaumont, Tex. 77707

Filed Oct. 29, 1968, Ser. No. 771,477

Int. Cl. A61g 7/10, 1/02

U.S. Cl. 5-82

14 Claims



A litter for lifting and supporting an injured person in substantially the position in which he is found comprising a pair of longitudinally extending complementary main frame members which are detachably connected together at each end to facilitate positioning the main frame members under the person by moving them laterally together from opposite sides of his body so as to connect the ends of the frames. The main frame includes central portions disposed in a longitudinal plane with elevated end portions for supporting the person's head and feet. The litter also includes U-shaped brackets, curved in an arc from the longitudinal plane of the central portion to the plane of the elevated portion which brackets can easily be slipped under a prostrate person's head to support his head and neck in their respective relative positions when the injured person is placed on the litter and when he is subsequently moved about from place to place. Further, the litter of the present invention does not interfere with taking X-rays of the head, neck and spine of a person on the litter.

additionally attached to said framework in a hinged manner whereby said walls may be upwardly collapsed against the framework. Yieldable sidewalls permit such collapsing.

3,574,873

FLUID-TYPE SUPPORT STRUCTURE FOR SIMULATING FLOTATION-TYPE SUPPORT

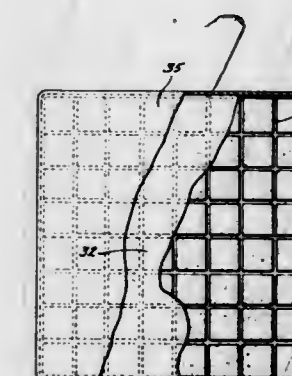
James D. Weinstein, 602 S. Washington Square, Philadelphia, Pa. 19106

Filed May 14, 1968, Ser. No. 728,932

Int. Cl. A47c 27/08

U.S. Cl. 5-348

7 Claims



A cushion is constructed with an internal, soft matrix secured to, and contained within, an elastic and flexible envelope within which a fluid is contained at atmospheric pressure. Over the matrix is placed a cover of a material whose surface has a low coefficient of friction. The foregoing produces, when a person sits on the cushion, a substantially uniform pressure which is sufficiently low, and a resistance to lateral movement of the person sitting on the cushion which is also sufficiently low, to prevent or minimize the formation of decubitus ulcers.

3,574,872

INFANT'S CAR BED

Paul G. Mattila, Rte. 1, Box 543A, Battleground, Wash.

Filed Jan. 6, 1969, Ser. No. 789,169

Int. Cl. A47d 7/00, 9/00

U.S. Cl. 5-94

2 Claims

A car bed is disclosed having a rectangular lightweight framework with extensible seat engaging means projecting from each of its corners. Front, rear and bottom walls are of

3,574,874

WATER TOY

Charles H. Chaffin, 874 Hickory Drive, Ind., and Roy E. McGaffie, 319 Ellenhurst Drive, Anderson, Ind. 46012

Filed Sept. 29, 1969, Ser. No. 861,570

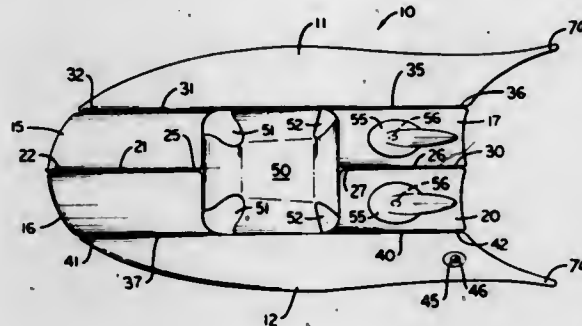
Int. Cl. B63b 7/08

U.S. Cl. 9-2

3 Claims

A water toy and float including inflatable pneumatic body made up of tubes which surround and support a flexible seat.

The tubes extend from front to rear and are connected by seams so that the outermost tubes can roll or fold upwardly along the seams to cup around the arms and body of the



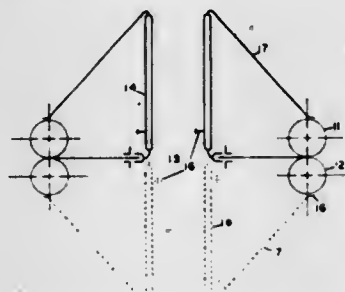
child sitting in the seat. The body also has thereon inflatable fins which are decorative and which can act as a head rest or cradle for the child's head.

3,574,875
LIFERAFT

Arthur George Tulett, Granby, Quebec, Canada (c/o Tul Safety Equipment Ltd., 2240 Beaconsfield Ave., Montreal, Quebec, Canada)
Filed Nov. 25, 1968, Ser. No. 778,460
Int. Cl. B63c 9/04

U.S. Cl. 9-11.1

3 Claims



An inflatable liferaft is provided with an inflatable strut. The strut is in the form of a double-walled sleeve which permits erection of the strut on either side of the floor of the raft.

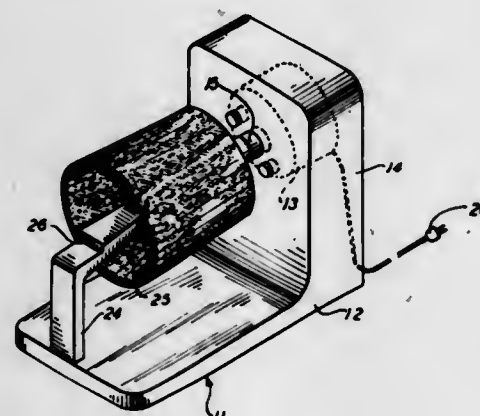
3,574,876

ELECTRIC-MOTOR-OPERATED SHOE POLISHER

Eli Cohen, 350 Continental Ave., Paramus, N.J.
Continuation-in-part of application Ser. No. 632,281, Apr. 20, 1967, now abandoned. This application Oct. 31, 1968, Ser. No. 777,974
Int. Cl. A47i 23/02

U.S. Cl. 15-97

10 Claims



A hollow frame generally cylindrical, but with its outer surface curved axially, a polishing sleeve of fabric fitted over

the open end, one end of said sleeve being connected to the central interior portion of the closed end of said frame, means stretching said sleeve and causing an end portion to contract around said closed end toward the axis, said closed end portion being mounted on the output shaft of a motor to be rotated about its axis, and a shelf for supporting a shoe so that said cloth may polishingly engage selected portions of said shoe while being worn.

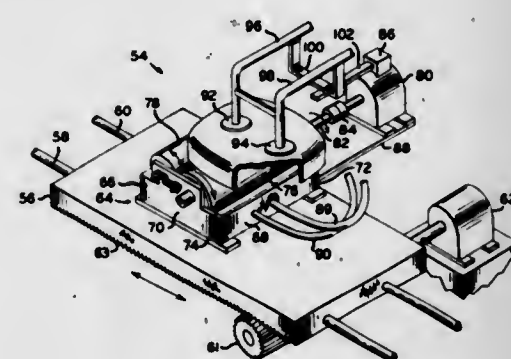
3,574,877

APPARATUS FOR CLEANING THE FRIT SEAL EDGE OF CATHODE RAY TUBE FACE PANELS

John W. Stetz, Waterloo, N.Y., assignor to Sylvania Electric Products, Inc.
Original application Sept. 24, 1968, Ser. No. 762,028, now abandoned. Divided and this application Jan. 19, 1970, Ser. No. 3,973
Int. Cl. H01j 9/38

U.S. Cl. 15-97

3 Claims



A continuous, self-cleaning belt of spongy material is employed to clean the panel edges of surplus screening materials. The method comprises passing the spongy surface through a solvent for the surplus screening materials and causing contact to occur between the surface and the frit seal edge. Two types of apparatus for accomplishing the method are presented, namely: one in which an endless belt is utilized; and a second which employs a sponge-covered roller.

3,574,878

POWER ROOTER WITH SAFETY CLUTCH

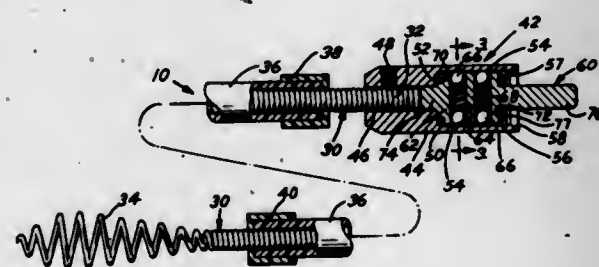
Harold Shames, Ardsley; Sidney J. Shames, Briarcliff Manor, N.Y., and John F. Logan, Pequannock, N.J., assignors to said Logan assor. to Melard Manufacturing Corp., Bronx, N.Y.

Filed May 19, 1969, Ser. No. 825,829

Int. Cl. B08b 9/02

U.S. Cl. 15-104.3

2 Claims



A helical-wire power-driven snake is provided at its drive end with a torque-responsive safety clutch which prevents kinking or snapping of the wire or overloading or burnout of the source of rotary power. Spring-loaded clutch elements cooperating with axial grooves provide for both transmission of rotary motion and selective transmission of thrust from the power tool.

3,574,879

BRUSH AND CASE COMPOUND

Winfried Werdling, 25, de Chailly, 1000 Lausanne, Switzerland

Filed July 1, 1969, Ser. No. 838,079

Claims priority, application Switzerland, July 2, 1968, 9884/68

Int. Cl. A46b 17/04

U.S. Cl. 15-184

6 Claims



A toothbrush or the like bristle-carrying body the shank of which is carried by an advantageously tubular rear section inside which it may collapse, the shifting of said body into and out of said rear section being performed frictionally by the throttled part of a case adapted to receive the brush, said throttled part engaging the bristles to ride over them frictionally so as to shift said body in the desired direction.

3,574,880

ROTARY BRUSH

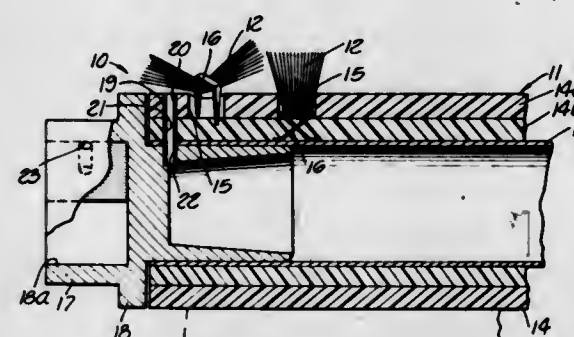
Donald N. Butzen, Arcadia, Calif., assignor to Los Angeles Brush Manufacturing Corporation, Los Angeles, Calif.

Filed Dec. 5, 1968, Ser. No. 781,355

Int. Cl. A46b 13/02, 3/16

U.S. Cl. 15-179

5 Claims



A rotary brush for use in cleaning, drying and polishing produce comprising a core with filament extending therefrom and adapted to be arranged in a substantially horizontal plane laterally adjacent a plurality of similar brushes.

3,574,881

HEATED WINDSHIELD WIPER-SPRAY ASSEMBLY

Reinhold Temple, 710 Dahlia, Denver, Colo. 80220

Filed June 16, 1969, Ser. No. 833,435

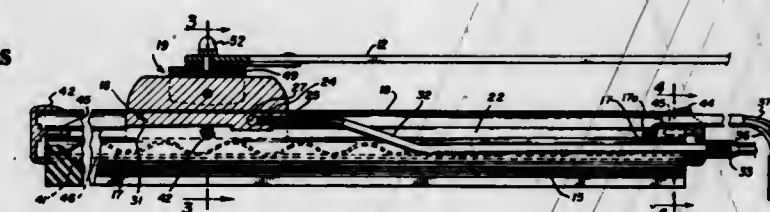
Int. Cl. B60s 1/46

U.S. Cl. 15-250.04

13 Claims

A heated windshield wiper-spray device is suited for cleaning the windshield and removing ice from the wiper blade of a vehicle during subfreezing temperatures and snow and sleet conditions and includes a fluid heating block and a

heating element, preferably an electric resistance wire on the wiper blade, to move conjointly with the blade as it wipes back and forth across the windshield. The heating element



and block are enclosed in a housing forming a heating chamber on the back of the blade. Spray nozzles in the outlets of the block are arranged to spray heated fluid onto the windshield.

3,574,882

WINDSHIELD WASHER PUMP ASSEMBLY

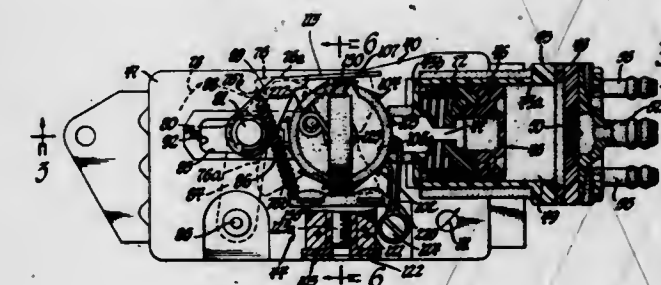
Ronald G. Petry, Xenia, and Ralph W. Edwards, Dayton, Ohio, assignors to General Motors Corporation, Detroit, Mich.

Filed July 30, 1969, Ser. No. 846,068

Int. Cl. A47i 1/00

U.S. Cl. 15-250.02

9 Claims



In a preferred form, this disclosure relates to a windshield cleaning apparatus having a wiper unit and a washer unit including a programmed washer pump assembly for intermittently delivering a predetermined number of squirts of washing fluid to the windshield each time it is energized. The washer pump assembly includes a reciprocable pump having a spring-actuated delivery stroke and an interruptible driving connection with a wiper unit motor. The washer pump assembly further includes a control and timer mechanism which is operable, when momentarily energized, to establish a driving connection between the pump and the wiper unit motor for a predetermined number of wiper strokes and then to automatically and abruptly interrupt the driving connection therebetween. The washer pump assembly is also operable to deliver a squirt of washer fluid to the windshield prior to the wipers of the wiper unit having moved very far from their parked position when both units are simultaneously energized.

3,574,883

WINDSHIELD CLEANSING SYSTEM

William James Brittain, Southend, Essex; Jaan Lindre, Benfleet, Essex, and Kenneth Stone, Chelmsford, Essex, England, assignors to Ford Motor Company, Dearborn, Mich.

Filed July 30, 1969, Ser. No. 846,122

Claims priority, application Great Britain, Dec. 31, 1968, 61796/68

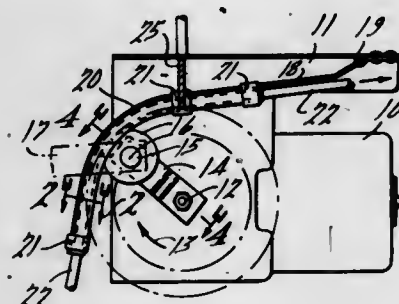
Int. Cl. B60s 1/46

U.S. Cl. 15-250.02

8 Claims

A windshield cleansing system utilizing a peristaltic pump device in which a roller mounted on an element of the windshield wiper operating linkage intermittently engages

and rolls along a tube having resilient walls. The relationship of the roller and the tube are controllable so that the tube can be cyclically compressed by the roller to cause windshield wiper solvent to be pumped to and discharged



from a washer jet. The cyclical compression of the tube and resultant discharge of the washer solvent is correlated with the movements of the wiper blades across the windshield surface.

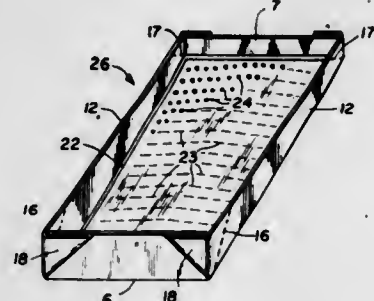
3,574,884

DISPOSABLE TRAY WITH STEEL FOIL INSIDE BOTTOM

Charles E. Palmer, Somers, Conn., assignor to Jones & Laughlin Steel Corporation, Pittsburgh, Pa.
Filed Mar. 8, 1967, Ser. No. 621,670
Int. Cl. B44d 3/12

U.S. Cl. 15—257.06

2 Claims



Paint roller loading trays or pans constructed of liquid impermeable paperboard, plastic or other nonporous material and having steel foil inside bottoms are provided.

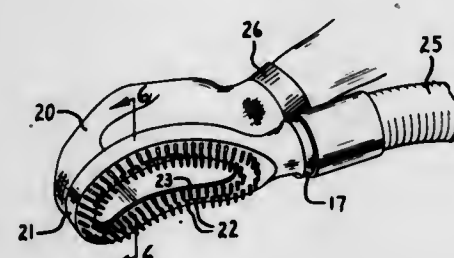
3,574,885

PET BRUSH

Genevieve M. Jones, 10840 S.E. 85th Ave., Portland, Oreg.
Filed Apr. 1, 1969, Ser. No. 811,796
Int. Cl. A47i 9/06

U.S. Cl. 15—393

2 Claims

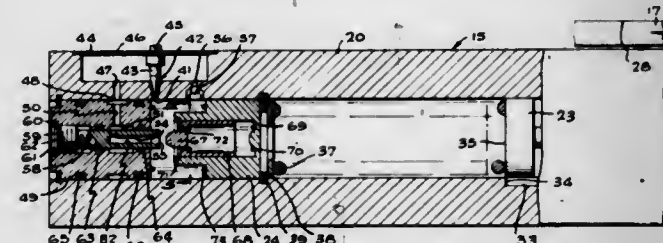


A brush having flexible plastic bristles and adapted for connection with a vacuum cleaner to remove loose hair dislodged in brushing an animal. In a modification, the brush is incorporated in a mitt to receive the operator's hand and the body of the brush is pliable so that it may be curved to correspond to the surface being brushed.

3,574,886
POSITION CONTROL HYDRAULIC SNUBBER
George B. Solovieff, San Clemente, Calif., assignor to Norris Industries, Inc., Los Angeles, Calif.
Filed July 10, 1969, Ser. No. 840,631
Int. Cl. E05f 3/12

U.S. Cl. 16—51

9 Claims



A hydraulic snubber for such use as a door closer in which a main piston connected to an actuator arm slides in a main chamber containing a bypass which, once passed, allows hydraulic liquid to be trapped ahead of the main piston and then actuate a control piston which is reciprocated in a control chamber. From the control chamber there are paths through which hydraulic fluid can flow to a reservoir. One path is an unrestricted passage and the other path is a restricted passage. During part of the movement cycle of the control piston, the hydraulic fluid flows freely through the unrestricted passage until a valve element carried by a separate resiliently mounted shutoff piston closes the unrestricted passage. At this point hydraulic fluid is forced through the restricted passage to the reservoir and retards movement of the control piston, which continues to move relative to the shutoff piston because of the resilient connection between them. Movement of the control piston finally stops when it bottoms against the stationary end of the control chamber. Upon the return cycle, hydraulic fluid first flows freely from the reservoir through the check valve passage to the control chamber while the shutoff valve remains closed and later, when the shutoff valve is opened, the hydraulic liquid also flows freely from the reservoir through the corresponding passage and shutoff valve seat into the control chamber.

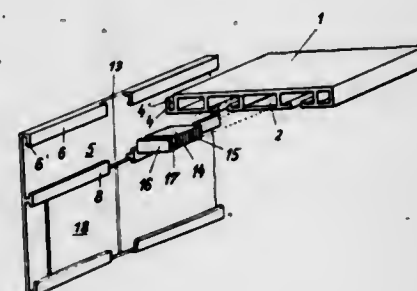
3,574,887

CURTAIN HOLDER

Karl Schindlauer, 11, Ferdinand-Buchberggasse, A-2340 Modling, Austria
Filed Nov. 21, 1968, Ser. No. 777,699
Claims priority, application Austria, Dec. 20, 1967, A11493/67
Int. Cl. A47h 1/04

U.S. Cl. 16—95

4 Claims

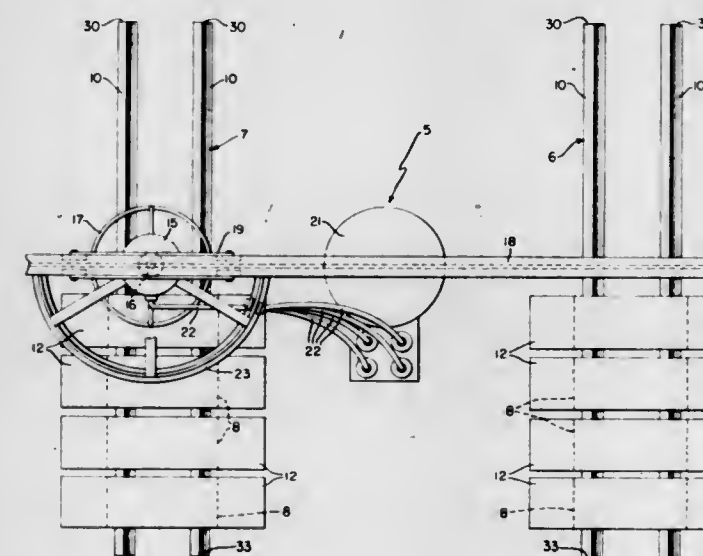


The invention includes a curtain holder having running slots for gliders. The holder incorporates a face panel for hiding the upper portion of the curtains and gliders. This face panel is removably attached to the holder by a snap-joint fit. The face panel can also be applied to the ends of the holder, and friction insert means are used to assist in attaching the ends of the face panel to the holder.

3,574,888
FOAM MOLDING APPARATUS
Jack E. Holaday, Logan, Ohio, assignor to The Goodyear Tire & Rubber Company, Akron, Ohio
Filed Nov. 27, 1968, Ser. No. 779,415
Int. Cl. B29c 3/06, 1/00; B65b 43/52

U.S. Cl. 18—4

2 Claims



This invention relates to an apparatus for producing molded foam articles having a conveyor system to move a series of molds from a stripping station through a filling station and then return the mold to the stripping station with the foaming apparatus being suspended above the filling station and being movable to another filling station while the molds are being returned to their original position.

3,574,889

MULTIPORT EXTRUDING DIE

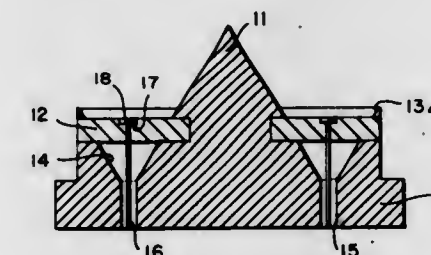
Charles H. Hire, Ridgecrest, and Elmer J. Rhyn, China Lake, Calif.

Filed Nov. 18, 1968, Ser. No. 776,448

Int. Cl. D01d

U.S. Cl. 18—8

2 Claims



A multiport extruding die for forming plastic material into tubular shape; said die provided with a plurality of ports of predetermined dimensions having a spring steel stake or mandrel positioned centrally in each port. In operation the material is extruded or squeezed through the port around the mandrel or stake thereby forming a plurality of tubules in a single operation; each tube having a uniform central perforation and uniform wall thickness.

3,574,890

COMBINED HEATING AND MIXING APPARATUS

Walter Gresch, Lachmattstr. 55, Muttenz, Switzerland

Filed July 28, 1967, Ser. No. 656,714

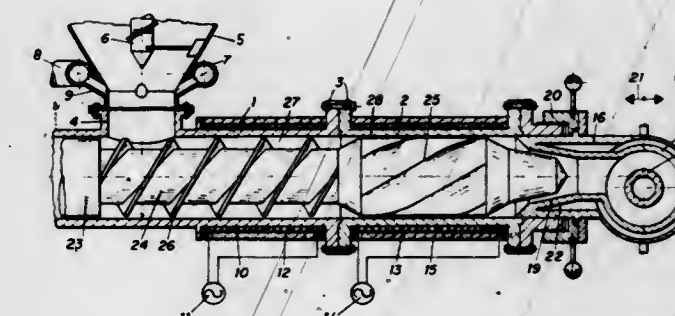
Int. Cl. B29f 3/06

U.S. Cl. 18—12

2 Claims

Apparatus for carrying out high-temperature processes during extrusion and comprising an elongated housing having an inlet and an outlet and screw means in the housing and having a first kneading and mixing screw portion adjacent the

inlet and a coaxial second portion adjacent the outlet and having a larger pitch and a smaller screw depth than the first portion. The apparatus includes further heating means



surrounding the housing at least in the region of the second screw portion and adjustable throttling means in the region of the outlet.

3,574,891

MECHANICAL SCREW PRESS

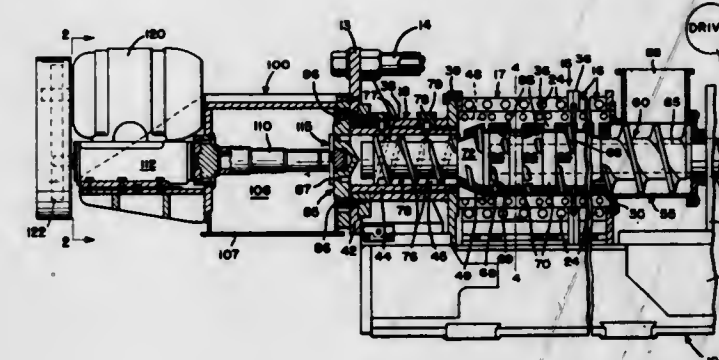
Dean K. Bredeson, and Robert Kent Slaby, Piqua, Ohio, assignors to The French Oil Mill Machinery Company, Piqua, Ohio

Filed Aug. 19, 1968, Ser. No. 753,647

Int. Cl. B29f 3/02

U.S. Cl. 18—12

3 Claims



A screw press has a drainage cage section connected to a smaller solid cage section which forms the discharge end. A screw having interrupted flights extends within the cage sections and has its feed end connected to a drive and its discharge end rotatably supported by the solid cage section. A die plate is mounted on the discharge end of the cage adjacent the discharge end of the screw, and a pivotable housing supports a motor-driven cutter for movement between an operable position adjacent the die plate and a retracted position which permits convenient access to the cutter and die plate.

3,574,892

POWDER COMPACTING PRESS

Joseph E. Smith, Birmingham, Mich., assignor to Wolverine-Pentronix, Inc., Lincoln Park, Mich.

Filed Jan. 27, 1969, Ser. No. 794,196

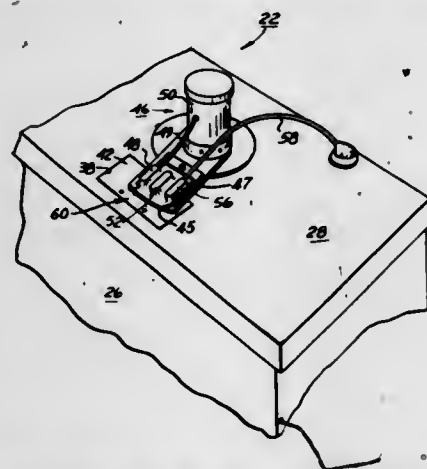
Int. Cl. B30b 7/00, 11/04

U.S. Cl. 18—16

8 Claims

A punch and die assembly and work station positioner for a powder-compacting press including a die plate and a tool capsule containing a punch or punches for reciprocation therein which is formed as a unit with the die plate and a multiple work station positioner assembly angularly movably

positioned over the die plate, the die plate being provided with a plurality of substantially linearly arranged die cavities adapted to be filled with powdered material in a first position of the work station positioner and for receipt of similarly arranged punches to compress the powder between the



punches and an anvil in a second position of the work station positioner, and to eject the compressed articles from the die cavities in a third position of the work station positioner for discharge through similar linearly arranged discharge apertures in the first position of the work station positioner.

3,574,893

TIRE-VULCANIZING PRESS

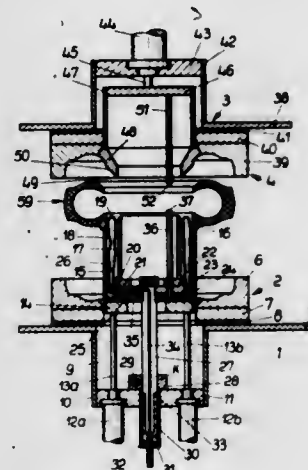
Walter Balle, Dornigheim, and Gunter Pommer, Frankfurt am Main, Germany, assignors to Leonhard Herbert Maschinenfabrik

Filed May 16, 1969, Ser. No. 825,168

Claims priority, application Germany, May 17, 1968, P 17 78 615.1

Int. Cl. B29h 5/02

U.S. Cl. 18—17



A tire-vulcanizing press which has particular application to tires of smaller size, e.g. those used for private cars including a heating bag arranged folded double between an inner and an outer cylinder on the lower part of a press, the inner cylinder acting as a bag-guiding cylinder and having means for positioning the cylinder at different levels and the outer cylinder acting to eject a tire from the lower half of a mould, and means on the closing of the press to adjust the height of the inner cylinder and thus the amount of the bag within a tire.

3,574,894

SYNTHETIC RESIN INJECTION MOLDING MACHINE
Katashi Aoki, 6037, Oaza Minamijo, Sakaki-machi, Hanishina-gun, Nagano-ken, Japan

Filed May 27, 1969, Ser. No. 828,288

Claims priority, application Japan, May 31, 1968, 43/36919

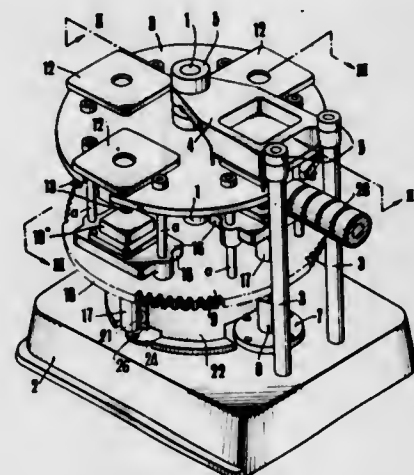
Int. Cl. B29c 3/00

U.S. Cl. 18—20

7 Claims

A rotary injection molding machine characterized in that a pair of vertically spaced apart, but unitary connected rotary

discs are intermittently rotatably carried by a main shaft of a frame, a plurality pairs of molds are disposed between said pair of rotary discs in equiangularly spaced apart relation with each other in such a manner that they may be opened or



closed; and a hydraulic mold opening and closing means for opening and closing one pair of said molds in the vertical direction when it is held in a stationary position is disposed at one portion of an annular track provided upon said frame.

3,574,895

FOOTWEAR SOLE-INJECTION-MOLDING APPARATUS

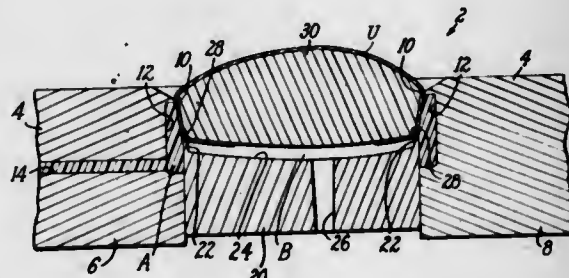
Donald B. McIlvin, Danvers, Mass., assignor to USM Corporation, Flemington, N.J.

Filed Dec. 22, 1967, Ser. No. 692,926

Int. Cl. B29f 1/00

U.S. Cl. 18—30

8 Claims



Apparatus for injection molding onto a lasted footwear upper a sole having different compounds or colors of plastics. The apparatus comprises a footform for receiving a lasted upper, a mold ring for defining the periphery of the molded sole, and a bottom mold member for defining the bottom of the molded sole. The mold ring is provided with at least one injection passage for the entrance of a first plastic into the mold cavity formed by the footform, mold ring and bottom mold member. The bottom mold member is provided with an injection passage for the entrance of a second plastic. A mold member is further provided with means to segregate the mold cavity zones into which the first and second plastics are injected.

3,574,896

MOLDING APPARATUS

Helmut Fernholz, Wiensenstrasse 2, Meinerzhagen Westfalen, Germany

Filed May 16, 1968, Ser. No. 729,596

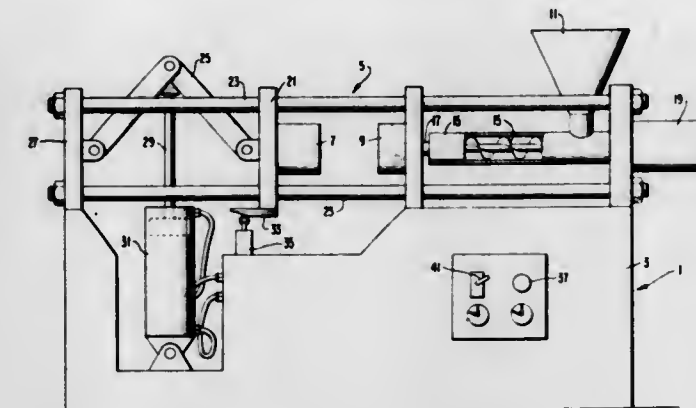
Int. Cl. B29f 1/00

U.S. Cl. 18—30

3 Claims

Molding apparatus that operates cyclically and has an operating period and a rest period during each cycle is provided with a pair of timers that are alternately actuated upon movement of a portion of the apparatus through a

reciprocatory path of motion once during one full cycle. One V-belt forming an endless V-belt replacement. A clamp timer thus runs during the operating period and the other means is removably engageable with the belt or belt



during the rest period; and if either should time out, thereby indicating a malfunction of the apparatus, then the actuating and heating circuits are opened and an alarm is actuated.

3,574,897

INJECTION-MOLDING APPARATUS

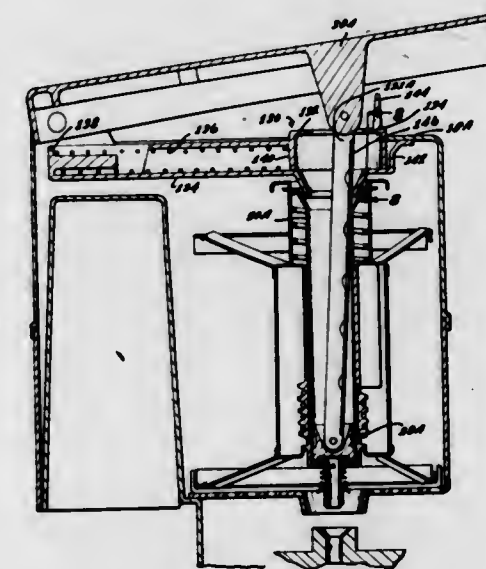
Manning Citron, San Marino; William R. Baynes, Palos Verdes Peninsula, and Dennis H. Merino, Harbor City, Calif., assignors to Mattel, Inc., Hawthorne, Calif.

Filed Mar. 21, 1969, Ser. No. 809,197

Int. Cl. B29f 1/03, 1/06

U.S. Cl. 18—30QH

10 Claims



A simple injection mold machine comprising a heated cylinder that is spring biased upward, away from the mold, a valve at the bottom of the cylinder which is opened by pushing it up, and a piston for moving down in the cylinder. Downward force on the piston moves the cylinder down until the valve abuts the mold and is opened, the piston also supplying force to expel the material out of the cylinder and into the mold. The molds include wells that trap the first-injected material, which may represent the remainder from a previous charge of another color so it does not enter the cavity where useful parts are formed. The molds also include riser passageways that allow the escape of material when the cavity is filled, to indicate this fact.

3,574,898

V-BELT TEMPORARY REPAIR KIT

Richard A. Scott, and Clarence E. Rice, Oklahoma City, Okla.

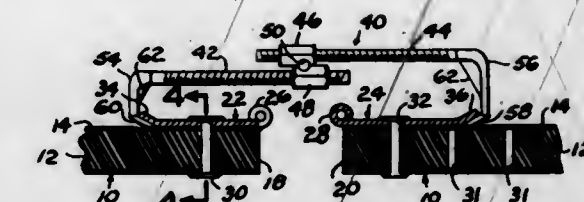
Filed Mar. 25, 1969, Ser. No. 810,317

Int. Cl. F16g 7/04

U.S. Cl. 24—32

6 Claims

A pair of belt end connectors are respectively connected in cooperating relation to opposing ends of a selected length of



connectors for drawing meeting ends of the belt toward each other.

3,574,899

SNAP FASTENER

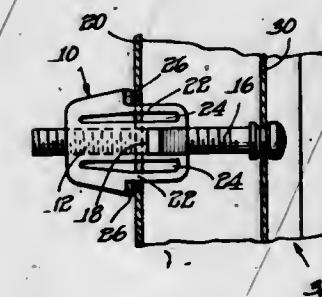
Julian V. Fisher, Carpentersville, Ill., assignor to Illinois Tool Works Inc., Chicago, Ill.

Filed Sept. 4, 1969, Ser. No. 855,107

Int. Cl. F16b 39/28, 13/06

U.S. Cl. 24—73

11 Claims



The present invention relates generally to one-piece fasteners of the type having a central longitudinal aperture for a work-supporting screw member and adapted to be snapped into association with a noncircular workpiece aperture. The embodiment of the invention disclosed herein includes an elongate, substantially rigid or firm shank section having a longitudinal screw-accommodating aperture and laterally flexible shank sections superimposing the opposite sides of the rigid shank section. As the fastener is snapped into position within a work aperture, these flexible shank sections yield inwardly to facilitate initial insertion, peripheral shoulders intermediate the extremities of the flexible shank sections automatically flex outwardly as an incident to the movement of the shank sections for securing the fastener against axial movement in one direction and other shoulder means secure the fastener against movement in the opposite direction.

3,574,900

JAMMING CLEAT

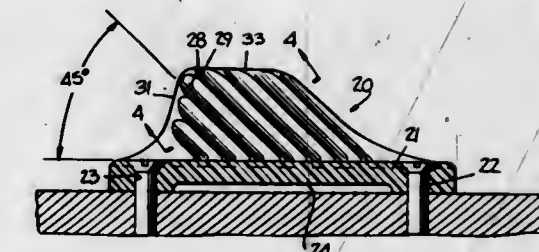
Reginald John Emery, 88 Sweet Briar, Welwyn Garden City, England

Continuation-in-part of application Ser. No. 433,317, Feb. 17, 1965, now abandoned. This application Feb. 23, 1968, Ser. No. 707,608

Int. Cl. F16g 11/04; A44b 21/00

U.S. Cl. 24—130

10 Claims



A cleat for securing a line, cable or similar elongated members that has a base with a head and tail end portions. A

pair of spaced walls are provided which project from the base, and opposing interior surfaces of the walls are inclined away from each other to form a slot to receive and secure an elongated member. The interior surfaces are inclined relative to each other at an angle of between eight and 20°. In addition, the interior surfaces have a plurality of parallel ridges and grooves sloping towards the head in portion of the base at an angle of between 20° and 50° to the plane of the base.

3,574,901

FASTENER FOR ORNAMENTS

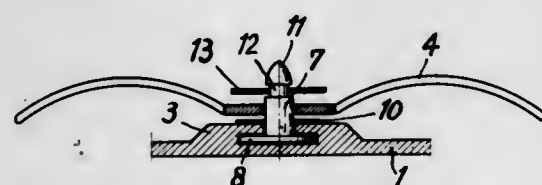
Carlos Capella Nogue, Calle Roman Macaya 18, Barcelona 6, Spain

Filed Sept. 15, 1969, Ser. No. 857,918

Claims priority, application Spain, Sept. 17, 1968, 358,568

Int. Cl. A44b 17/00

U.S. Cl. 24-217



A fastener for attaching ornaments to elastic articles, such as a bathing cap, includes a flanged stud received in a blind aperture in the elastic body having an internal cavity for the flange with a rigid washer adhesively secured to the body surrounding the stud to prevent removal thereof, and an elastic washer to hold an ornament on the stud's projecting stem.

3,574,902

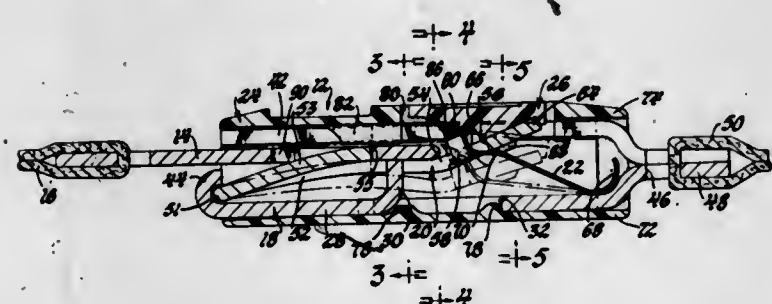
PUSHBUTTON BUCKLE

Thomas E. Lohr, Warren, Mich., assignor to General Motors Corporation, Detroit, Mich.

Filed Sept. 4, 1969, Ser. No. 855,188

Int. Cl. A44b 11/26

U.S. Cl. 24-230



A buckle for releasably holding an apertured latch plate consists of three basic metal members (housing, latch lever, and spring) and two plastic ones (pushbutton). The latch lever is pivotally mounted on an inverted flange on the base of the housing and includes a slot into which a bias spring extends. The pushbutton is movable through an opening in the plastic covering to actuate the latch lever.

3,574,903

FASTENING DEVICE FOR A WRISTWATCH BAND AND THE LIKE

Kouzo Namiki, Noda City, Japan, assignor to Tonan Kinzoku Kogyo Kabushiki Kaisha, Tokyo, Japan

Filed Jan. 28, 1969, Ser. No. 794,529

Claims priority, application Japan, Feb. 5, 1968, 43-7399

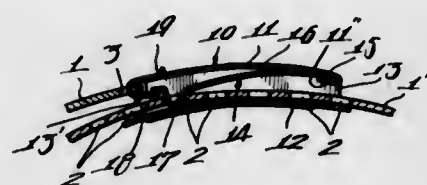
Int. Cl. A44c 5/18

U.S. Cl. 24-265

4 Claims

A fastening device for a wristwatch band and the like comprising an upper arcuate plate member secured to one half-portion of said band and a lower arcuate plate member

connected to said upper plate member, said upper plate member having elastic band engaging and holding means and



said lower plate member having guides for the other half-band section.

3,574,904

MACHINES FOR STAMPING PASTY MATERIALS INTO CAKES, BARS OR TABLETS

Carlo Mazzoni, Busto Arsizio (Varese), Viale Trentino, Italy

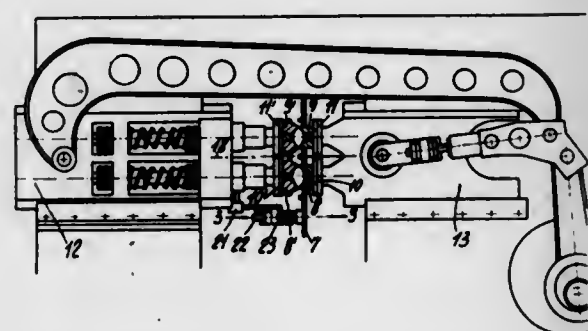
Filed Jan. 25, 1968, Ser. No. 700,416

Claims priority, application Italy, Jan. 27, 1967, 11970/67

Int. Cl. C11d 13/18

U.S. Cl. 25-7

4 Claims



A device for use in a machine for stamping pasty materials into cakes, bars or tablets of the type wherein the soap tablets are formed by pairs of mold halves meeting by passing through the openings of a jerkily rotating box, wherein said box is in the form of a disc provided with through openings, adjacent which projections or lugs are located and adapted to hold both the soap blocks to be moulded and also the excess of soap paste exiting from the periphery of the coupled mold halves, in the disc adjacent said lugs there being prearranged at least two through holes intended to be passed through by a pushing member moving the excess of soap paste from the disc to which it was attached.

3,574,905

DEVICE FOR SUCCESSIVELY BUILDING CONCRETE STRUCTURES

Kao Jing-Hong, No. 17, Chong-cheng, 5 Lane, Kae-Shyuan Ward, Lin-Ya District, Kaohsiung City, China/Taiwan

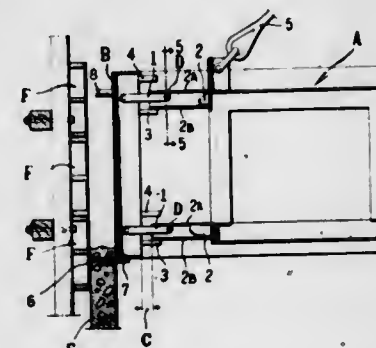
Filed Dec. 20, 1967, Ser. No. 692,082

Claims priority, application Japan, Dec. 16, 1967, 42/3225

Int. Cl. A61g 17/00; B28b 7/00

U.S. Cl. 25-131

3 Claims



A device comprises a framework and a movable panel attached to at least one side of the framework by movable

connecting arms. The movable panel is prevented from pivotally moving upward but is permitted to move downward, pivotally supported at supporting points in the arms while the vertical position of the panel is maintained during said movement. After a concrete wall is hardened supported by the panel, the whole device is lifted up by a lifting device. At this time, the panel is set apart from the wall surface due to the pivotal movement, and then the device is placed into the next position of construction by means of the lifting device.

3,574,906

CASKET

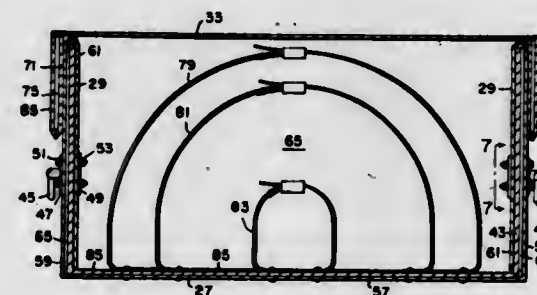
Richard Rittenhouse, Rosemont, Pa., assignor to Union Casket Company, Wilmington, Del.

Filed Apr. 23, 1968, Ser. No. 723,454

Int. Cl. A61g 17/00; B65d 5/40

U.S. Cl. 27-4

2 Claims



A casket made of paperboard comprising a bottom unit including a bottom wall, sidewalls, and end walls; and a top unit, which is slightly larger than the bottom unit so as to telescope over the bottom unit and form a lid, including a top wall, sidewalls and end walls; said bottom unit including a reinforcing liner having a bottom panel and side panels; and means connecting the liner side panels into the sidewalls of the bottom unit to form a part thereof. The sidewalls of the bottom unit include four thicknesses of corrugated paperboard, as follows: a first and second side panel, a liner side panel, and a side flap. These four thicknesses of corrugated paperboard are connected together by a handle having bolts joining a handle base plate to an anchor plate to an anchor plate mounted on the inside sidewall of the bottom unit.

3,574,907

DEVICE FOR SUPPORTING AND HANDLING WARP BEAMS IN CLOTH MILLS

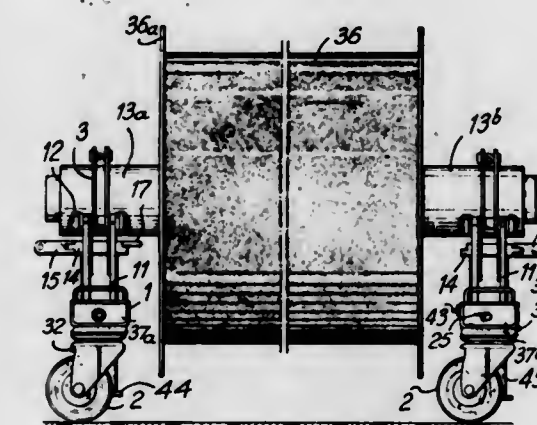
Jean Camille Agache, and Leon Emile Schricke, La Chapelle D'Armentieres, France, assignors to Anvar Agence Nationale De Valorisation De La Richeiche, Puteaux, Hauts-de-Seine, France

Filed Feb. 26, 1969, Ser. No. 802,598

Int. Cl. D03j 1/00

U.S. Cl. 28-41

7 Claims



A device for supporting and handling warp beams in cloth mills, comprising, on a rolling compound, two supports for

the two warp beam axle-ends respectively, means for rotatably engaging said axle-ends into said supports and means for lowering and raising said supports according to the requirements of each yarn processing station.

3,574,908

PRODUCTION OF A NONWOVEN FLEECE OF CONTINUOUS FILAMENTS

Helmut Werner, Elsenfeld, and Hans Stapp, Momlingen, Germany, assignors to Glanzstoff A. G., Wuppertal, Germany

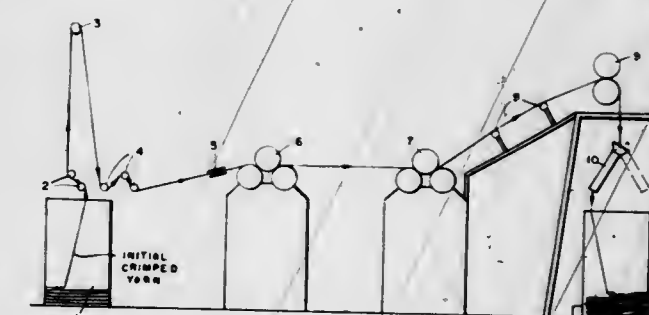
Filed Dec. 26, 1968, Ser. No. 787,013

Claims priority, application Germany, Jan. 2, 1968, Jan. 4, 1968, May 22, 1968, G38,682; G38,686; P 17 60 471.6

Int. Cl. D04h 13/00

U.S. Cl. 28-72

13 Claims



Process for the production of a nonwoven fleece from continuous filaments of a spun and stretched polymer yarn, especially a yarn composed of continuous hollow tubular polyethylene terephthalate filaments, wherein the yarn having permanently crimped filaments with an individual denier of about 0.5 to 20 denier is subjected to a temporary elongation within the range or region of the stress-strain curve which produces an elastic strain but under a load of at least 0.1 grams/denier, the permanent extension or set of the filaments being less than 4 percent, and then releasing the tension on the yarn whereby the crimped structure of the filaments is reformed and the yarn spreads out laterally. The resulting product is useful as a filler material in pillows, quilts, jackets and the like.

3,574,909

METHOD OF REDUCING INTERNAL MATRIX ARCING IN ELECTROSTATIC PRINTING TUBES

Kurt H. Brenner, Jr., Lake Road, R.D. #2, Seneca Falls, N.Y.

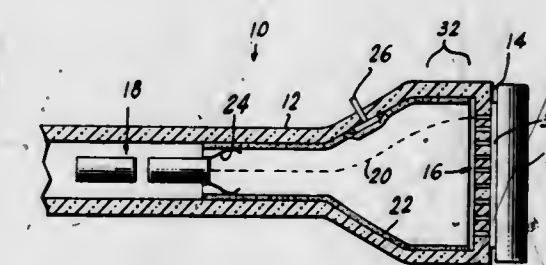
Original application Dec. 14, 1967, Ser. No. 690,688,

Continuation of application Ser. No. 483,510, Apr. 30, 1965. Divided and this application June 18, 1968, Ser. No. 748,110

Int. Cl. H01j 9/18

U.S. Cl. 29-25.13

2 Claims



Internal matrix arcing is reduced by providing the tube with an internal electrically conductive coating which is anhydrous or by applying hydrated material and baking it in air to dehydrate the material before the matrix is applied to the tube.

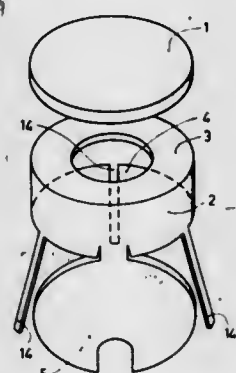
3,574,910

METHOD OF MANUFACTURING AN INDIRECTLY HEATED DISC-LIKE CATHODE AND CATHODE MANUFACTURED BY SAID METHOD

Adrianus Kuiper, Emmasingel, Eindhoven, Netherlands, assignor to U. S. Philips Corporation, New York, N.Y.
Filed Jan. 3, 1968, Ser. No. 695,410
Claims priority, application Netherlands, Jan. 25, 1967, 6701138

Int. Cl. H01j 9/00

U.S. Cl. 29-25.14



A method of manufacturing an indirectly heated cathode wherein a cup-shaped member having an end face provided with an aperture therein is secured to a disc-like cathode support along an inner edge to form a wedge-shaped gap which is thereafter filled with a metal powder. The metal powder is then sintered to provide a thermally conductive body between the heater housing and the cathode disc from which metal particles do not work loose.

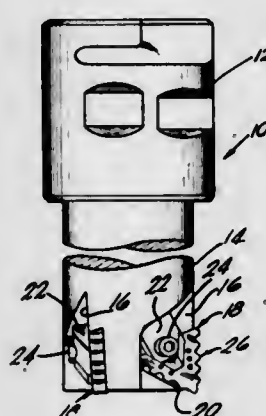
3,574,911

CUTTER AND INSERTS THEREFOR

William G. Penoyar, Detroit, Mich., assignor to Milling Specialties, Inc., Detroit, Mich.
Continuation of application Ser. No. 707,679, Feb. 23, 1968, now abandoned. This application Dec. 17, 1969, Ser. No. 885,720

Int. Cl. B26d 1/00, 1/12

U.S. Cl. 29-95



Apparatus for carrying out milling operations comprising an insert-type end mill including a shank at one end for mounting in a milling machine and a cylindrical body portion having tungsten carbide inserts forming the cutting teeth at the other end. The inserts are a throwaway type which are designed to reduce shock during the cutting operation so that deeper cuts can be made than were heretofore practical, thereby permitting high metal removal rates when taking deep cuts as well as in light-facing cuts. The inserts are triangular in shape with each edge being adapted for use as a cutting edge, and each edge being in the form of a modified sign wave so that it is serrated. The waves of each edge are offset or out of phase with the waves of the other two edges so that the peaks of one edge cover the troughs of the other edges. Three such inserts are used, and indicia is present in

each insert to enable the operator, when installing the inserts, to properly arrange them so that succeeding inserts around the periphery of the cylindrical body portion of the end mill have different ones of their edges intermost.

3,574,912

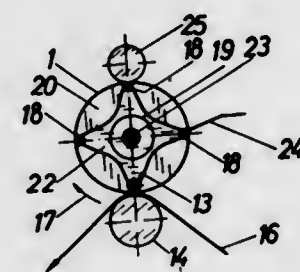
PRESSURIZED CYLINDRICAL ROLLER ARRANGEMENT

Rupert Kraft, 8 Pierstrasse 9020, Klagenfurt, Austria
Filed July 24, 1968, Ser. No. 747,372
Claims priority, application Austria, July 26, 1967, A6940

Int. Cl. B41i 35/00

U.S. Cl. 29-113

2 Claims



A cylindrical roller arrangement including a roller having two frontal endpieces and a thin, flexible, tight surface closed foil secured to said endpieces. The endpieces are movable relative to one another in axial direction and the axial distance of said endpieces is determined by the surface foil. A part zone of the inner hollow space of the roller adjacent the inside wall of the surface foil as well as the frontal endpieces have the form of a fluid gastight hollow body. The hollow body is filled with a pressure medium exerting a regular pressure on the inside wall of the surface foil as well as on the inside walls of the endpieces. The pressure on the inside walls of the endpieces causes an enlargement of the axial distance of the two endpieces and an axial stretching of the surface foil so that the foil keeps its accurately cylindrical surface.

3,574,913

METHOD OF MANUFACTURING A MANIFOLD COUPLING

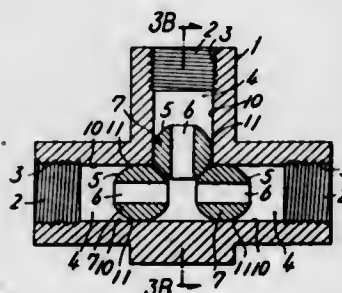
Nobuyoshi Saguchi, Tagata-gun, Shizuoka Prefecture, Japan, assignor to Usui Kokusai Sangyo Kabushiki Kaisha, Sunto-gun, Shizuoka-ken, Japan
[32] Feb. 18, 1967, Apr. 20, 1967, Japan
45/10094 and 45/25422

Original application Sept. 11, 1967, Ser. No. 666,588, now Patent No. 3,526,419. Divided and this application Oct. 23, 1968, Ser. No. 798,824

Int. Cl. B21d 53/00; B23p 15/26

U.S. Cl. 29-157

2 Claims



A method of manufacturing a manifold coupling for connecting pipes together wherein a steel or iron outer member is formed with a hole therethrough and threaded portions to receive the end of corresponding pipes to be screwed thereinto, and at least one steel or iron seating member having a spherical seating surface is formed with a communicating aperture axially thereof. The seating member is fitted into said hole of said outer member and welded at a portion of its spherical seating surface to the inner sidewall of the outer member by means of a bonding agent applied therebetween. Thus the outer member with the apertured

seating member bonded thereto forms a manifold coupling for connecting fluid pipes together which is free from any leakage of fluid and easy and economical to manufacture.

3,574,914

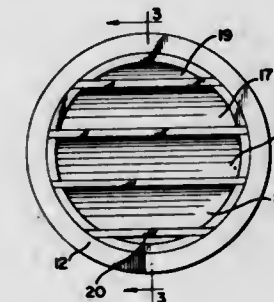
METHOD OF FABRICATING A BAFFLE ASSEMBLY

Neil A. Carter, Danville, Calif., assignor to Cenco Instruments Corporation, Chicago, Ill.
Original application Feb. 19, 1968, Ser. No. 706,322, now Patent No. 3,460,580. Divided and this application June 12, 1969, Ser. No. 862,545

Int. Cl. B21d 53/00; B21k 29/00

U.S. Cl. 29-157R

2 Claims



A baffle assembly having good diffusion characteristics formed by baffle plates inserted into angularly disposed slots extending inwardly from opposite ends of a supporting ring. The baffle plates may be sealingly locked into position by encapsulation, for example, by casting a second ring around the supporting ring. Each baffle plate has the inner edge in opposition to a side face of an opposed plate to assure maximum diffusion while not materially increasing resistance to flow. A baffle assembly cooling arrangement is also shown.

3,574,915

FASTENER-PLACING APPARATUS

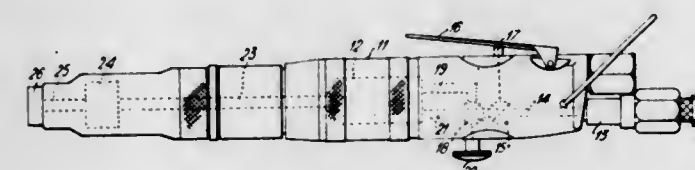
Harvey Philip Jeal, Stevenage, England, assignor to Aerpat A. G., Zug, Switzerland
Filed Nov. 14, 1968, Ser. No. 775,772

Claims priority, application Great Britain, Aug. 8, 1968, 38,000/68

Int. Cl. B23p 19/00, 19/04, 17/00

U.S. Cl. 29-200

3 Claims



The invention provides an adapter for facilitating placing fasteners of the type comprising a threaded first part which is pulled into a second part to place the fastener. The adapter converts a standard rotary tool to provide separately both rotary and axial movement of a threaded mandrel engageable with the threaded first part of a fastener to be placed. The adapter comprises a body; a reciprocable and rotatable mandrel, one end of which is threaded to engage a fastener and the other end of which forms one part of a lead-screw device, the other part of the lead-screw device being driven to rotate by the rotary tool; and an abutment nose rotatable and reciprocable on the body and keyed for sliding on the mandrel. The abutment nose and the body form two parts of a dog clutch. The mandrel is normally rotated by the lead-screw device, but when a fastener is drawn up onto the mandrel and displaces the abutment nose, the dog clutch engages to prevent rotation of the mandrel, which is then retracted axially into the body, by the action of the lead-screw device, to place the fastener.

3,574,916

CRANKSHAFT SALVAGE MACHINE

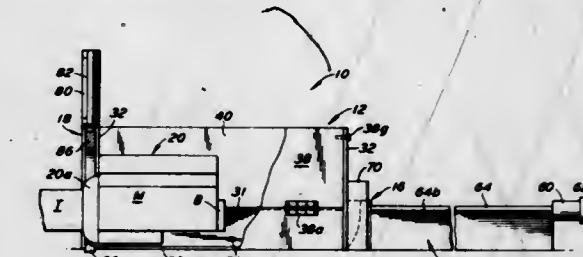
Frank M. Anich, 3070 Chenoweth Road, Tallmadge, Ohio, and Eugene G. Blondheim, 34 N. Village View Road, Akron, Ohio 44328

Filed Feb. 19, 1969, Ser. No. 800,561

Int. Cl. B23p 19/00

U.S. Cl. 29-200

7 Claims



A crankshaft salvage machine is provided which essentially removes the crankshaft from a conventional internal combustion engine used for automobiles, trucks, or the like. The apparatus clamps the engine block in position, and then rams a cutter head under the block to drive the crankshaft away from the block, while shearing off the oil pan. The unique concave structure of the cutter head seats the end of the crankshaft upon the driving action of the head whereby the greater strength and hardness of the crankshaft allows it to break out of its mounting in the block. Separate ram means along with a pivotal side to the carrying frame allow for disposition of the block after the crankshaft has been removed therefrom. Unique guards are provided to eliminate the possibility of metal jamming any of the rams. The surface configuration and shearing action possible with the head of the driving ram greatly facilitates the operation of the apparatus.

3,574,917

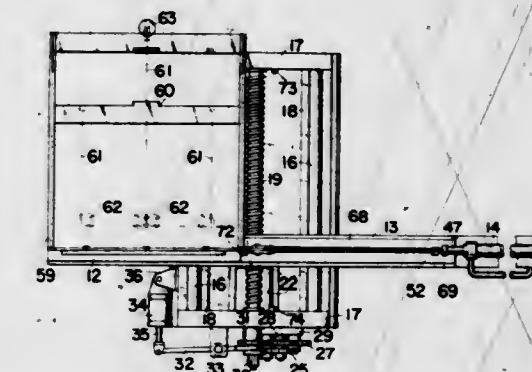
MACHINE FOR ASSEMBLING THE CORE OF HEAT EXCHANGER

Katsuji Miyazaki, Tokyo, Japan, assignor to The Toyo Radiator Company, Limited, Tokyo, Japan
Filed July 31, 1968, Ser. No. 749,206

Int. Cl. B23p 15/26

U.S. Cl. 29-202

6 Claims



A machine for automatically inserting a plurality of metal tubes one by one into series of openings formed through a plurality of metal plates which are arranged in parallel to each other. The insertion of the metal tubes is effected by a pneumatically operated pushrod. After insertion of one metal tube into a series of openings formed through the metal plates in alignment, the machine is automatically operable to shift the pushrod into register with a second series of openings next to the series of the openings which have been pierced through by the above-mentioned metal tube. The retracting movement of the pushrod causes the supply of a new metal tube to the machine. Then the pushrod thrusts a second metal tube into the next series of the openings of the metal plates. Thus a plurality of metal plates are interwoven by a plurality of metal tubes to form the core of a heat exchanger of plate fin type.

3,574,918

RIVET DETECTING APPARATUS

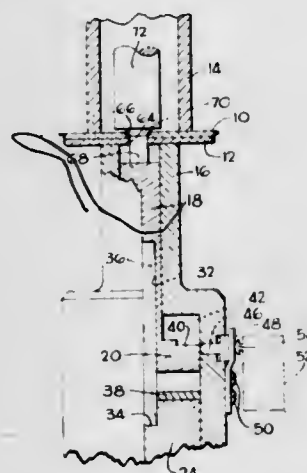
Harry P. Focht, Kenmore, N.Y., assignor to General-Electro Mechanical Corp., Buffalo, N.Y.

Filed Aug. 6, 1969, Ser. No. 847,930

Int. Cl. B23p 11/00

U.S. Cl. 29-243.54

5 Claims



A rivet detecting apparatus having upper and lower annular clamps engaging the workpieces to be riveted and upper and lower anvils positioned in the upper and lower clamps. The upper anvil abuts the headed end of a rivet and is held stationary while the lower anvil is moved against the shank end of the rivet to form a head thereon. The lower anvil is spaced upwardly from a drive ram and is urged upwardly against the work by a spring. When a rivet is inserted in a hole formed in the workpieces, the lower shank end of the rivet engages the lower anvil and moves it downwardly against the spring bias. Downward movement of the lower anvil engages a movable plunger which actuates a limit switch to move the drive ram against the lower anvil and force it upwardly against the shank end of the rivet to form a head thereon. In the absence of a rivet in the rivet hole, the lower anvil remains in its uppermost position, the limit switch is not actuated, and operation of the riveting machine is terminated.

3,574,919

METHODS OF AND APPARATUS FOR ASSEMBLING ARTICLES

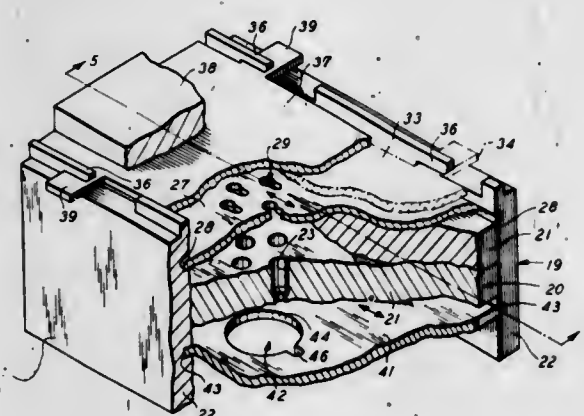
Miles N. Reppert, Shillington, Pa., assignor to Western Electric Company, Incorporated, New York, N.Y.

Filed Apr. 17, 1969, Ser. No. 816,966

Int. Cl. B23p 19/00; H05k 13/00; B23p 21/00

U.S. Cl. 29-429

10 Claims



Groups of elongated paramagnetic articles, having headed ends, are aligned with and moved through groups of bores in an assembly fixture after which washers are placed over the ends of the elongated articles. The assembly fixture is inverted and the washers slide along the articles into engagement with the headed ends of the articles and are held

thereagainst when the fixture is returned to an original position. The lower unheaded ends of the articles are positioned in holes formed in a wafer after which the elongated articles are released to drop slideably in the holes in the wafers until the washers engage the top surface of the wafer.

3,574,920

DWELLING ASSEMBLY LINE AND METHOD

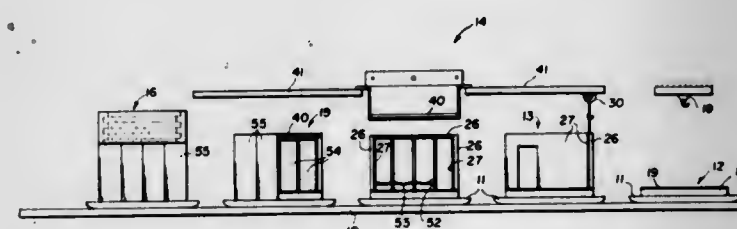
William G. Stirling; David Stirling, Jr., Avon, and Harper Sibley, Jr., Rochester, N.Y., assignors to Stirling Homex Corporation, Avon, N.Y.

Filed Sept. 16, 1968, Ser. No. 760,103

Int. Cl. B23p 19/00

U.S. Cl. 29-430

20 Claims



A dwelling is assembled by: building a floor joist framework upside down; installing service fixtures in the floor joist framework and fastening a subfloor to it; framing and covering walls with interior covering; erecting the interior-covered walls on the floor; building a ceiling on a jig above the dwelling; inverting the ceiling jig and lowering the ceiling onto the walls; securing service fixtures to the exposed stud and joist frameworks; trimming, covering, and roofing the dwelling; installing lifting hardware, and transporting the dwelling to its site.

3,574,921

METHOD OF MANUFACTURING STRUCTURAL PANELS

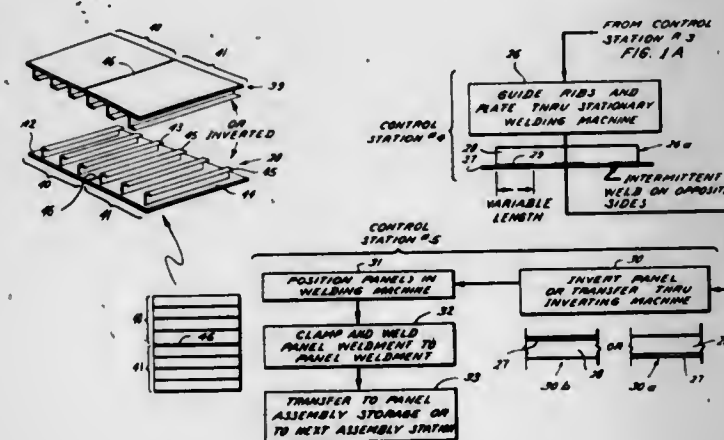
Harry J. Fiegel, Jr., Galveston, and Russell S. Thatcher, Dallas Tex., assignors to Kelso Marine, Inc.

Filed July 24, 1968, Ser. No. 747,287

Int. Cl. B23p 19/04

U.S. Cl. 29-457

9 Claims



A method of manufacturing structural panels. A plurality of rib members is placed in a side-by-side relationship on a plate member and the rib members are simultaneously welded to the plate member to form a structural panel. Two or more such structural panels are welded together to form a structural panel assembly.

3,574,922

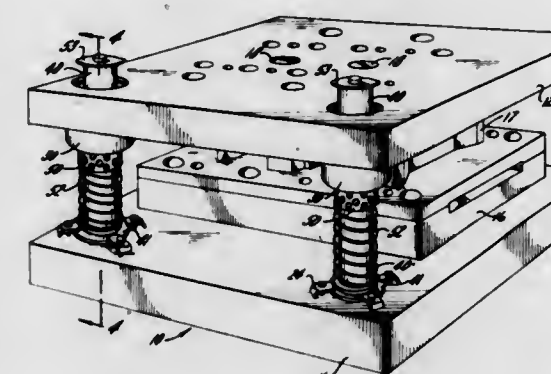
METHOD OF UTILIZING DIE SET

Joseph C. Eppich, Parma, Ohio, assignor to Danly Machine Corporation, Chicago, Ill.

Filed Apr. 30, 1969, Ser. No. 820,475

Int. Cl. B23q 3/00

U.S. Cl. 29-465



The method of utilizing a die set in which pins having respective ball bearing cages are employed during the fitting of the dies with conventional posts being substituted therefor during production running of the dies.

3,574,923

COMPENSATING BASE FOR SIMULTANEOUSLY BONDING MULTIPLE LEADS

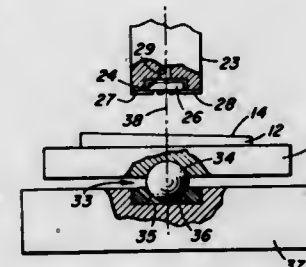
Robert Holbrook Cushman, Princeton Junction, N.J., assignor to Western Electric Company, Incorporated, New York, N.Y.

Original application June 15, 1967, Ser. No. 646,249, now Patent No. 3,448,911, dated June 10, 1969. Divided and this application Sept. 10, 1968, Ser. No. 803,494

Int. Cl. B23k 31/02

U.S. Cl. 29-471.1

2 Claims



In simultaneously bonding a plurality of leads extending from a multileaded device to associated bonding sites on a generally planar surface of a workpiece such as contact areas on a thin-film circuit, difficulty is experienced (1) in compensating for lack of parallelism between the generally planar surface of the workpiece and a planar bonding surface of a bonding tool so as to apply substantially the same bonding pressure to each lead, and (2) in compensating for such lack of parallelism without permitting any substantial lateral displacement of the workpiece relative to the bonding tool which would either disturb the alignment of the leads relative to their associated bonding sites or damage the device and/or workpiece. A compensating base is disclosed having a platform for supporting a workpiece, and having a pivot mounted for lateral displacement for pivotally supporting the platform. A bonding tool is also disclosed having a recessed portion for receiving the multileaded device with each lead extending across a planar bonding surface of the bonding tool. As the bonding tool is displaced to bring the multileaded device into engagement with the workpiece, the workpiece is pivoted about the first point of contact to bring the workpiece into parallelism with the bonding tool so as to apply substantially the same bonding pressure to each lead to simultaneously bond the leads to their associated bonding sites. As the pivot which pivotally supports the platform is permitted lateral displacement, the

workpiece pivots about the first point of contact with the bonding tool without any substantial lateral displacement of the workpiece relative to the bonding tool.

3,574,924

SOLID STATE REPAIR METHOD AND MEANS

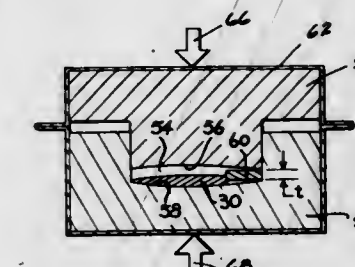
Gordon L. Dibble, Fontana, Calif., assignor to North American Rockwell Corporation

Filed Oct. 28, 1968, Ser. No. 771,220

Int. Cl. B22d 19/10; B23p 7/00

U.S. Cl. 29-401

9 Claims



A method of rebuilding a jet engine compressor, fan, or turbine blade containing a worn or damaged area by trimming off the portion of such blade surrounding the area and replacing such portion with another of precisely corresponding size and metallurgical composition. Standardized templates define the size of the trimmed off portion. The replaced portion is integrally joined to the blade by solid state molecular diffusion bonding in a mold exactly duplicating the contour of the original blade when new.

3,574,925

SOLDERING PROCESS

Jens R. W. Schneider; Jorg S. Gehrke, and Werner Lubbe, Wedel, Holstein, Germany, assignors to Licentia Patent-Verwaltungs-G.m.b.H., Frankfurt Am Main, Germany

Filed Dec. 9, 1968, Ser. No. 782,092

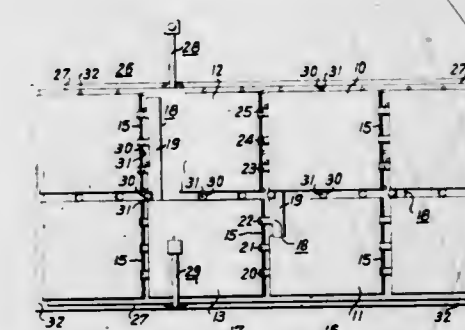
Claims priority, application Germany, Dec. 7, 1967,

P 16 27 545.9

Int. Cl. B23k 31/02

U.S. Cl. 29-487

1 Claim



Soldering process for connecting contacts on a plurality of solar cells to form groups of parallel-connected solar cells, which groups are connected in series with each other, including the steps: Applying a solder to upper side contacts of the solar cells of a first group and to surfaces of contact-making elements to be connected with the underside contacts of the solar cells of a second group; applying a fluxing agent solution to the soldering areas of the contact-making elements; placing the solar cells and contact-making elements onto a soldering device with the contact-making elements covering the undersides of the solar cells of the first group and the upper side contacts of the solar cells of the second group; inserting such soldering device together with the items placed thereon into a soldering bath; and removing fluxing agent residues from the solar cells. An improved contact-making element and soldering device for practicing such process.

3,574,926
PROCESS FOR SERIES PRODUCTION OF AN ELECTRIC RESISTANCE FOR A HYBRID MINIATURIZED CIRCUIT AND THE RESISTANCE THUS OBTAINED

Paulette Le Men, 158 Blvd. Jean Mermoz, Chevilly-Larue; Maurice J. Menoret, 12 Avenue de Dardun, Chatillon-sous-Bagneux, and Pierre Y. Conruyt, Allee Claude Debussy, L'Hay-les-Roses, France

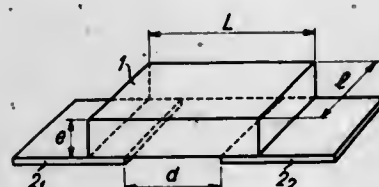
Filed Nov. 18, 1968, Ser. No. 776,513

Claims priority, application France, Nov. 29, 1967, 130,245

Int. Cl. B01j 17/00; H01l 7/66

U.S. Cl. 29—583

3 Claims



A process for the manufacturing of an electric resistance for a hybrid miniaturized circuit from a wafer of p-type silicon or germanium, consisting in preparing said wafer with dimensions exceeding those corresponding to the required resistance value; diamond cutting said wafer into smaller ones, preparing for each smaller wafer two connections in the form of gilded metal strips, welding each smaller wafer to its two connections at a temperature above the gold-semiconductor eutectic formation point, and adjusting said smaller wafers to said required resistance value by removing material therefrom by means of an abrasive powder stream.

3,574,927

CONSTRUCTION OF LOW-TENSION WIRE ARRAYS

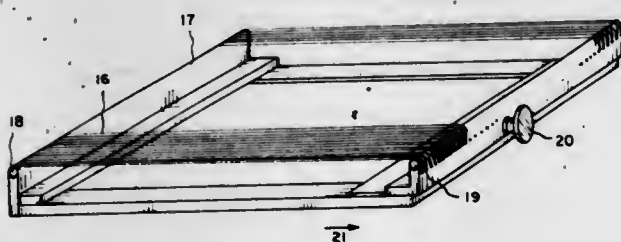
Albert L. Whetstone, Southport, Conn., assignor to Science Accessories Corporation, Southport, Conn.

Filed Jan. 29, 1969, Ser. No. 794,950

Int. Cl. H01s 4/00

U.S. Cl. 29—592

4 Claims



A method of constructing a low-tension wire array including the steps of arraying wires on an expandable frame expanding the wires past their elastic limit, and releasing the frame tension until each wire hangs in catenary. The wires are then placed onto an epoxied sheet and the ends cut.

3,574,928

METHOD FOR FITTING AND INSTALLING MICROWAVEGUIDES

Ernest T. Long, China Lake, Calif.

Filed Oct. 17, 1968, Ser. No. 768,271

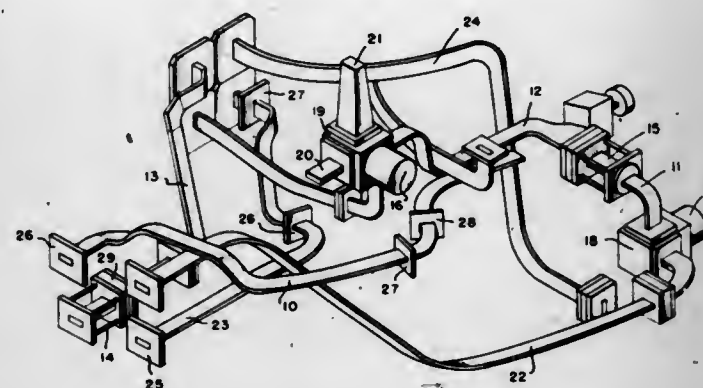
Int. Cl. H01p 11/00

U.S. Cl. 29—600

1 Claim

A method for modeling microwaveguides which comprises

providing a plastic strip or Acrylic or Plexiglas, heating the strip until it is flexible, bending the heated strip to the desired



shape of the waveguide and cooling in place until the plastic hardens.

3,574,929

ADJUSTABLE RESISTORS AND METHOD

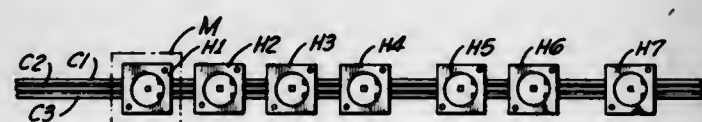
Robert D. Michik, Riverside, Calif., assignor to Bourns, Inc.

Filed June 2, 1969, Ser. No. 829,337

Int. Cl. H01c 17/00

U.S. Cl. 29—610

7 Claims



A method of making adjustable resistors including three-terminal resistors (potentiometers) in which a set of long flat conductors is fed from a source in parallel array through a molding machine which in a step-by-step operation forms on and around the conductors a series of spaced-apart insulative resistor bodies in which portions of the conductors are exposed for contact or for welding on of resistance elements, the conductors being severed between the resistor bodies and formed into or left in place as electrical terminals. In some forms, resistor body covers are similarly formed on a metal strip, and individually mated with resistor bodies.

3,574,930

METHOD OF FORMING A PRINTED THERMISTOR ON A METAL SHEET

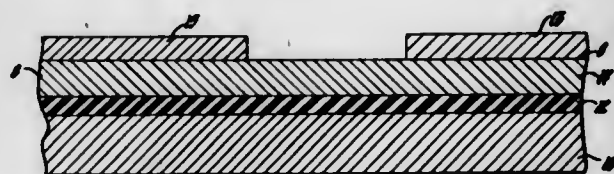
John W. Riddel, Fenton, and Raymond E. Schwyn, Flint, Mich., assignors to General Motors Corporation, Detroit, Mich.

Original application Dec. 8, 1966, Ser. No. 600,230, now Patent No. 3,469,224, dated Sept. 23, 1969. Divided and this application Oct. 4, 1968, Ser. No. 798,498

Int. Cl. H01c 7/04

U.S. Cl. 29—612

16 Claims



This disclosure relates to thermistor assemblies, and more particularly to a nickel substrate having a thermistor film thereon and a method of making the same. The thermistor assembly is formed by coating a nickel substrate with a film of thermistor material and subsequently heating the coated nickel substrate until a thin, adherent insulative layer of nickel oxide is formed. The nickel oxide layer insulates the nickel substrate electrically from the thermistor material and

it bonds the thermistor material to the nickel substrate. After the coated nickel substrate has cooled, two electrical contacts in spaced relationship to each other are printed on top of the thermistor film. This thermistor assembly as a fast temperature response, high heat dissipation characteristics which permit the thermistor to be operated at power levels above and below one watt, and provides a sturdy construction which is not readily broken.

3,574,931

METHOD FOR MANUFACTURING RESISTANCE-TEMPERATURE DEVICE

Mitsuaki Mochizuki, Suma-Ku; Minoru Tanaka, Okashi, and Tadataka Koyama, Takarazuka, Japan, assignors to Okazaki Manufacturing Company, Kobe, Japan

Filed Dec. 26, 1967, Ser. No. 697,554

Int. Cl. H01c 1/02, 17/00

U.S. Cl. 29—613

4 Claims



The method of making a resistance-temperature measuring device comprising a dielectric support upon which a winding of resistance wire is carried. The ends of the winding are connected to terminal leads. Sufficient excess turns are allowed so that the resistance value may be calibrated by cutting off one end of the winding. The end of the winding remote from the leads is temporarily anchored pending calibration, temperature characteristic and rapid and accurate response.

3,574,932

THIN-FILM BEAM-LEAD RESISTORS

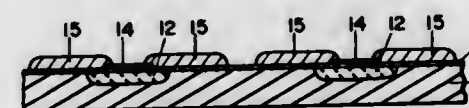
Richard W. Wilson, Phoenix, Ariz., assignor to Motorola, Inc., Franklin Park, Ill.

Filed Aug. 12, 1968, Ser. No. 751,813

Int. Cl. H01c 7/00, 17/00

U.S. Cl. 29—620

7 Claims



Thin-film beam-lead resistors are fabricated for use in hybrid microcircuits by a sequence of steps beginning with the formation of a substrate member having an array of dielectric islands coplanar with and supported by a matrix material that is selectively etchable in the presence of the dielectric islands. A refractory dielectric layer is then deposited on the substrate to cover the islands and the surrounding coplanar matrix material. A thin-film resistance element is then deposited on each portion of the dielectric layer that covers a dielectric island. Conductive terminal pairs are then deposited in contact with spaced-apart locations on each resistance element, followed by the step of removing the matrix material, together with contiguous portions of the dielectric layer to separate the completed resistor assemblies.

3,574,933

METHOD OF MAKING PRINTED CIRCUIT BOARDS WITH PLATED-THROUGH HOLES

Art E. Cassingham, Los Altos, and Arvin C. Skyrud, Milpitas, Calif., assignors to Sylvania Electric Products Inc.

Filed Nov. 29, 1968, Ser. No. 779,845

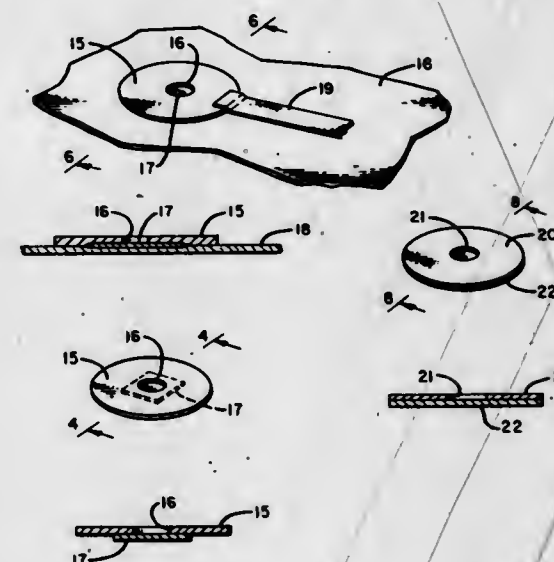
Int. Cl. B41m 3/08; H05k 3/00; G03c 5/00

U.S. Cl. 29—625

6 Claims

Artwork for printed circuit boards with plated-through holes is made with terminal area pads having center openings

covered with an optical filter, preferably a colored strip. By appropriately filtering light passing through the artwork, two master transparencies are made photographically, one with and the other without center hole images corresponding to the center openings in the pads. The transparency with such images is used to expose a photosensitized copper-clad board



for locating centers of the holes preparatory to drilling of the board. The transparency without center hole images is used to transfer the same circuit pattern to the drilled board after the holes have been metallized and the board is again photosensitized. The board is plated with etch-resistant metal, stripped and finally is etched to complete the circuit pattern on one or both sides of the board.

3,574,934

METHOD OF SECURING COMPONENTS TO A CIRCUIT BOARD

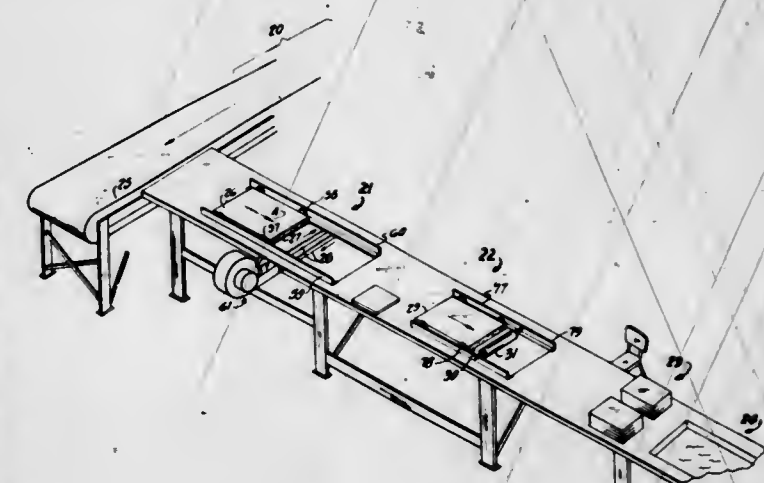
Ralph A. De Rose, Villa Park, Ill., assignor to International Telephone & Telegraph Corporation, New York, N.Y.

Filed June 3, 1968, Ser. No. 734,065

Int. Cl. H05k 3/30

U.S. Cl. 29—626

1 Claim



A template made of steel or other hard material is identical with a printed circuit card with respect to the locations of holes for receiving component leads to be soldered to the printed circuit cards. The template and card are sandwiched together at the start of production. Then, all components are mounted with their leads projecting through the bottom of the template. Thereafter, they are cut off flush with the bottom of the template. Next, the template is removed to expose the stub ends of the leads. Then a roller is run across the bottom of the card, and the leads are bent over into a presoldering position.

3,574,935

**APPARATUS AND METHOD FOR APPLYING
TERMINALS TO A CIRCUIT BOARD**

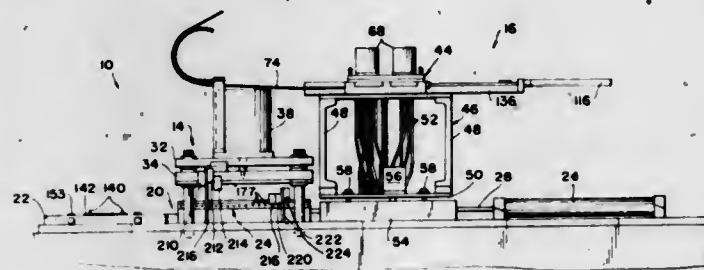
Quentin Berg, c/o Berg Electronics, Inc., York Expressway,
New Cumberland, Pa.

Filed Nov. 12, 1968, Ser. No. 775,055

Int. Cl. H05k 3/30, 13/04

U.S. Cl. 29—626

23 Claims



Apparatus and method for simultaneously mounting a plurality of terminals on a circuit board. The terminals are severed from a carrier strip, individually conveyed to a transfer plate so that the plate holds the terminals in the same pattern in which they will be attached to the circuit board. The terminals are transferred to the lower face of a ram in the same pattern and are held thereon by parasitic drag resulting from a flow of air past the terminals and into the ram. The ram with the terminals positioned on its lower face is lowered to seat the terminals on the circuit board in the desired pattern and to secure the terminals thereto.

3,574,936

**RAZOR FOR REMOVING OBJECTIONABLE HAIRS
FROM THE NOSE OF THE USER**

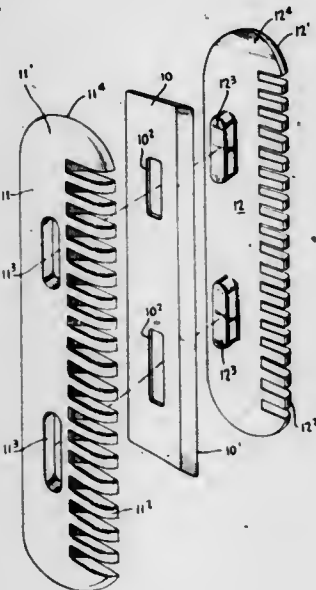
Harold V. Bullerman, 1106 Main, Windsor, Ill. 61957

Filed Oct. 10, 1968, Ser. No. 766,404

Int. Cl. B26b 21/00

U.S. Cl. 30—29.5

3 Claims



The razor blade holder which comprises the subject matter of this invention is adapted to embrace a safety razor blade in such fashion that its cutting edge may be employed to safely remove hair from the nose and ears of the user and to permit ready substitution of a new for a used blade when blade replacement is necessary.

3,574,937

KNIFE FOR CUTTING RUBBER AND THE LIKE

Merritt Wolfe, Akron, Ohio, assignor to The Goodyear Tire & Rubber Company, Akron, Ohio

Filed Oct. 1, 1968, Ser. No. 764,146

Int. Cl. B26b 9/02

U.S. Cl. 30—123.3

10 Claims

A knife for cutting rubber and the like having two generally smooth sides provided with grooves, and a generally straight sharp cutting edge provided with notches.

In the use of the knife, lubricant which was previously supplied to the grooves is dispensed to the confronting surfaces of the knife and the rubber, and the notches engage and break, or remove, any filamentary material embedded in the rubber.



The foregoing abstract is not to be taken as limiting the invention of this application, and in order to understand the full nature and extent of the technical disclosure of this application, reference must be made to the accompanying drawing and the following detailed description.

3,574,938

**JAW MOUNTED ADJUSTING MEANS FOR CUTTING
TOOL**

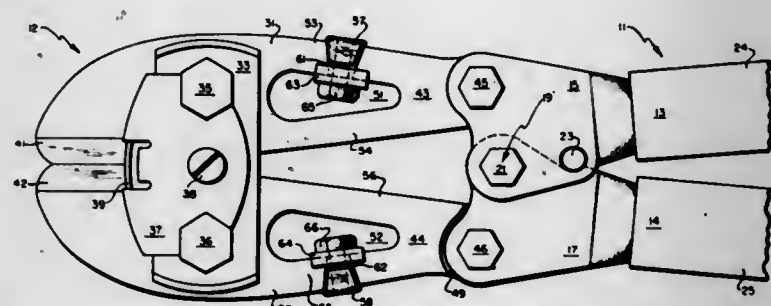
Thomas M. Porter, 8 Devens St., Concord, Mass.

Filed Nov. 22, 1968, Ser. No. 778,054

Int. Cl. B26b 17/04

U.S. Cl. 30—193

5 Claims



A toggle handle-actuated compression tool provided with means mounted on the jaw portion for adjusting the setting of the closed position of the working portions of the jaw.

3,574,939

SAFETY GUARD FOR CARPET CUTTER

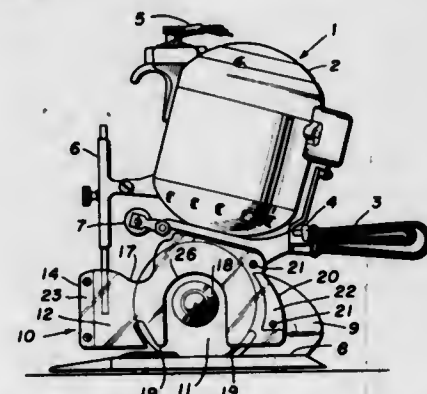
Charles N. Smith, Athens, Ala., assignor to Monsanto Company, St. Louis, Mo.

Filed Oct. 14, 1968, Ser. No. 767,226

Int. Cl. B26b 29/00

U.S. Cl. 30—286

3 Claims



A safety guard for a portable carpet cutter having shields covering a substantial portions of both sides of the cutting blade.

3,574,940

LOCKPIN FOR ORTHODONTIC BRACKET

Richard W. Allee, La Porte, Ind., assignor to Unitek Corporation, Mornovio, Calif.

Filed Nov. 21, 1968, Ser. No. 777,847

Int. Cl. A61c 7/00

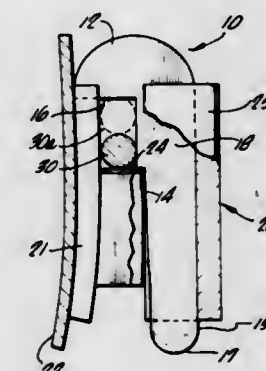
U.S. Cl. 32—14

5 Claims

A lockpin for confining an arch wire in a light-wire orthodontic bracket. The pin has a shank which is received in

a vertically extending channel in the bracket. A head extends lingually from the shank over an arch-wire channel in the bracket. The shank has a shoulder which rests on a bracket surface defining the bottom or floor of the arch-wire channel, and the shoulder serves to space the head a predetermined

side of bracket spaced from tooth band with arch wire receiving recess therebetween. Pin mounted for rotation in cylinder carries lateral projection at one end movable across recess to retain arch wire. Actuating member at other end of pin movable to position lateral projection selectively across and removed from said recess.



3,574,943

**DENTAL CAVITY LINER AND METHOD OF
RESTORING CARIOUS TEETH**

Marvin M. Stark, Los Altos Hills, and Ronald J. Nicholson, San Jose, Calif., assignors to The Regents of the University of California, Berkeley, Calif.

Filed Mar. 10, 1969, Ser. No. 805,790

Int. Cl. A61k 5/02

U.S. Cl. 32—15

3 Claims

Concerned is a method of and substance for use in restoring a carious tooth from which the carious material has been removed. The cavity so formed is lined with a layer of a polysiloxane, pressure sensitive, adhesive polymer dissolved in a fluorocarbon and then filled with an amalgam, thus providing a nonleaking repair.

distance above the floor of the arch-wire channel. A portion of the pin between the shoulder and head is configured to extend lingually into the arch-wire channel to adapt the bracket for use with an arch wire having a diameter smaller than the width of the arch-wire channel.

3,574,941

**DEVICE FOR STRAIGHTENING TEETH AND METHOD
OF MAKING SAME**

Theo Ritter, 9 Avenue Ruchonnet 1000, Lausanne, Vaud, Switzerland

Filed Aug. 19, 1969, Ser. No. 851,364

Claims priority, application Switzerland, Oct. 6, 1965, 13,852

Int. Cl. A61c 7/00

U.S. Cl. 32—14

8 Claims



An orthodontic device for straightening teeth includes a plate which partially surrounds the patient's teeth and has embedded therein an internally threaded nut or housing adjacent the tooth to be straightened. The housing provides an anchoring point for a capless pressure screw which may be solid or hollow. The hollow-type of screw contains a spring normally urging a piston against the tooth to be straightened to provide a constant pressure on the tooth to move it into proper position in relation to other teeth in the patient's mouth. The degree of pressure applied to the tooth may be adjusted from time to time by appropriate rotation of the screw. An orthodontic device of the aforementioned nature may be made by a flasking method which includes baking, or by a spray on cold cure method. Both methods utilize a plaster model of the patient's teeth to which a wax or resin is applied to form the plate.

3,574,942

ORTHODONTIC APPLIANCE

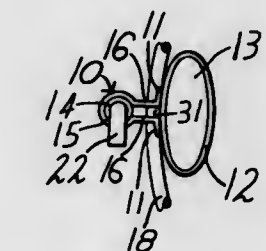
James B. McCabe, 1900 Deo Dara Drive, Birmingham, Ala.

Filed Dec. 18, 1969, Ser. No. 886,321

Int. Cl. A61c 7/00

U.S. Cl. 32—14

10 Claims



Orthodontic bracket mounted on tooth band and projecting outwardly therefrom. Vertical cylinder at outer

A sighting device is disclosed for use on an archer's bow in which a sight member is carried by a range member and the range member is supported in spaced relationship from the bow. A range member support device is adjustable in length so that the sight member may be supported at any desired position in spaced relationship relative to the bow.

3,574,945

MEASURING INSTRUMENT

John R. Main, 2101 Fountain View Drive, No. 1, and Newell R. Wall, 2200 Willowick, Houston, Tex. 77027

Continuation-in-part of application Ser. No. 648,577, June 26, 1967, now abandoned. This application July 23, 1969, Ser. No. 844,016

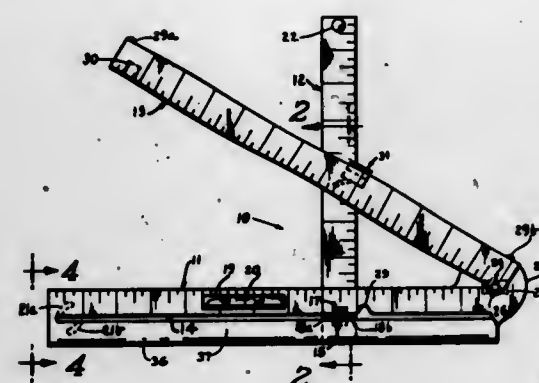
Int. Cl. G01c 1/00

U.S. Cl. 33—70

8 Claims

The invention comprises a measuring instrument including a graduated base blade, longitudinally slotted so that the lower end of a graduated, upright blade may be guidably, slidably connected to the base blade. An adjustably, angularly positionable, graduated, hypotenuse blade is pivotally connected to one end of the base blade. For exam-

ple, with hypotenuse blade aligned with roof line and upright spaced from pivot on base blade, roof area may be



calculated. The blades are adapted to be folded together in releasably latched position for pocket carriage.

3,574,946

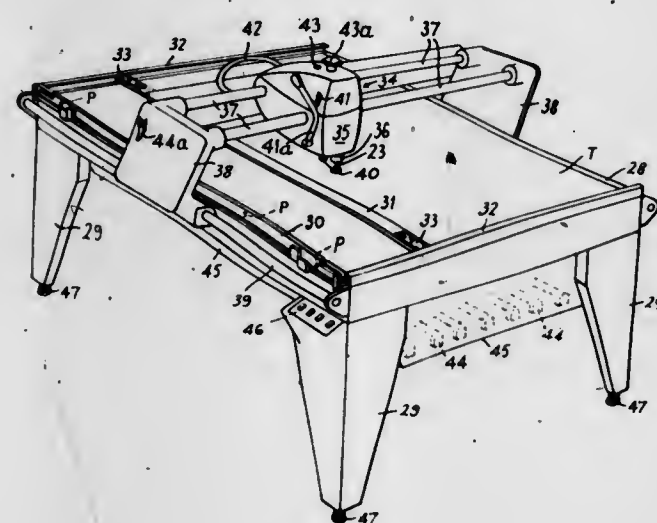
GRAPHIC REPRODUCTION PROCESSES

Donald Mayston, Potters Bar, and John H. Elworthy, Abbotts Langley, England, assignors to Protocol Engineering Limited, Hartfordshire, England
Continuation of application Ser. No. 731,682, May 17, 1968, now abandoned, which is a continuation of application Ser. No. 509,857, Nov. 26, 1965, now abandoned. This application Jan. 5, 1970, Ser. No. 506

Int. Cl. B41b 1/00

U.S. Cl. 33-184.5

10 Claims



The present invention relates to graphic or like reproduction processes and is concerned with obtaining accurate registration between the number of sets of color components, particularly color separation components, with respect to a carrier sheet. In accordance with the invention and where there is a number of sets of color separation components, the components of each set are initially registered with respect to the carrier sheet and then two spaced registration holes are formed through each set of components and the carrier sheet in the same relative positions, whereupon the plurality of sets of components and the carrier sheet can be positioned in register by locating the now formed register holes over suitable register pins. The invention also relates to apparatus for carrying out this method and comprising a surface to receive the color components and the carrier sheet with means for holding the relative materials in proper relation to said surface: a drilling machine is also provided for making the register holes in the materials simultaneously, said machine being mounted so as to be capable of movement in 2° above the surface.

3,574,947
APPARATUS FOR MEASURING NON-UNIFORMITIES OF A TRANSMISSION

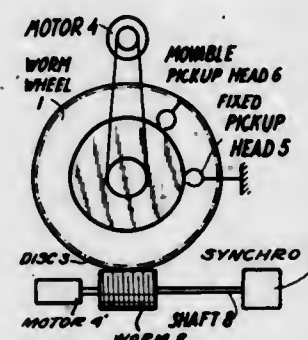
Karel Stepanek, Prague, and Josef Klapste, Cesky Brod, Czechoslovakia, assignors to Vyzhumny ustav obrabecich stroju a orbrabeni, Prague, Czechoslovakia

Filed Sept. 17, 1968, Ser. No. 760,168

Int. Cl. G01m 13/02

U.S. Cl. 33-179.5

12 Claims



An electrical signal having a frequency corresponding to the rotary speed of one rotatable member of a transmission having a large transmission ratio is compared in phase with an electrical signal having a frequency corresponding to the rotary speed of the other rotatable member of the transmission in coupling engagement with the one. The determined variations in phase relation of the signals are indicative of nonuniformities of the transmission.

3,574,948

APPARATUS AND METHOD FOR DRYING TUBING

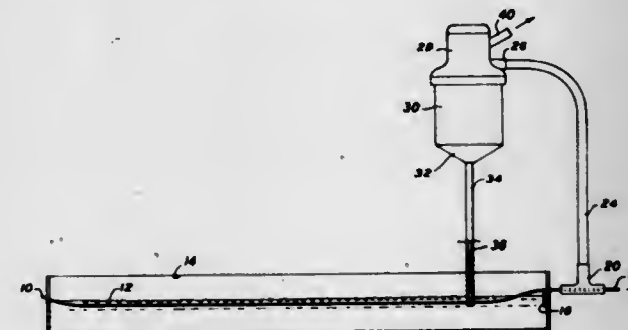
Raymond A. Heisler, 657 Dakota Trail, Franklin Lakes, N.J.

Filed Sept. 9, 1969, Ser. No. 856,313

Int. Cl. F26b 3/00

U.S. Cl. 34-9

12 Claims



A drying apparatus for use in the continuous process of forming tubing or treating wire in which one of the steps in the operation is either cooling or washing by means of a fluid. A suction system has a through passageway in a drying or cooling head which contemplates the feeding of the formed tubing or treated wire through a T-shaped head connected to a source of vacuum. The fluid is drawn from the surface of the passing tubing or wire by the inrush of air into the head, which suction line transports the removed fluid to a vacuum chamber receiving device. The collected fluid from the vacuum chamber may be returned to the cooling or treating tank or may be discharged to a waste disposal.

3,574,949

LUMBER DRYING

Philo T. Farnsworth, Salt Lake City, Utah, assignor to Frederick R. Furth, Cornwall Bridge, Conn., a fractional part interest to each

Filed Apr. 1, 1969, Ser. No. 811,835

Int. Cl. F26b 5/04

U.S. Cl. 34-16.5

14 Claims

In this invention means are provided for maintaining an accelerated liquid diffusion rate through the cell walls of green lumber, for the formation of small ice crystals at the

surfaces, for the direct transformation of the ice crystals into water vapor (sublimation) as rapidly as they are formed, and for the removal of the water vapor, without damage to the wood. The rate of drying is thus extremely high, being in the order of some 30 to 40 times faster than by forced-air drying and without the losses from cracking, checking and warping associated with the forced-air system. The apparatus includes a sealed chamber in which green lumber to be dried is placed. A refrigeration system consisting of the usual compressor, condenser and evaporator elements is contained within the chamber. The condenser coils are mounted on the sidewalls to radiate heat into the central and upper portions of the chamber. The evaporator is located in the bottom of

which one or more chambers for containing the material to be freeze-dried can be stacked, a source of vacuum in the cold trap subjecting all of the stacked chambers to a low pressure to cause sublimation of the moisture in the material in the chambers and condensation thereof in the cold trap and a means to direct heat given off by the refrigeration condenser against the exterior surface of the chambers and into the same to enhance the sublimation process.

3,574,951
APPARATUS FOR CONTINUOUSLY FREEZE-DRYING GRANULATES

Georg-Wilhelm Oetjen, Koln-Marienburg, and Hanns Eilenberg, Rosrath, Germany, assignors to Leybold-Heraeus-Verwaltungs-GmbH, Cologne-Bayental, Germany

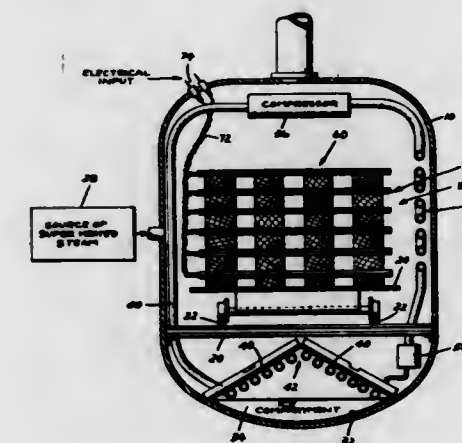
Filed Apr. 25, 1969, Ser. No. 819,305

Claims priority, application Germany, Apr. 25, 1969, P1778376.5

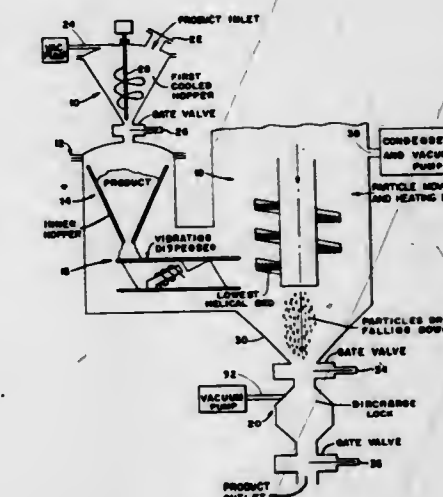
Int. Cl. F26b 13/30

U.S. Cl. 34-92

8 Claims



the chamber to reduce the temperature thereof to a value well below that at which water freezes, and to create a region of very low vapor pressure. A vacuum pump is connected to the chamber for reducing the pressure and temperature therein to a value at which moisture in the lumber is diffused through the cell walls and ice crystals form on the surfaces. Heat from the condenser and the heater "sticks" disposed between layers of lumber sublime the ice crystals as fast as they are formed, the water vapor therefrom gravitating to the lower region of the chamber where it is condensed and formed into ice. This process is performed in such a way that the lumber never freezes and the subliming action is continuous during the drying cycle.

3,574,950
LYOPHILIZING APPARATUS

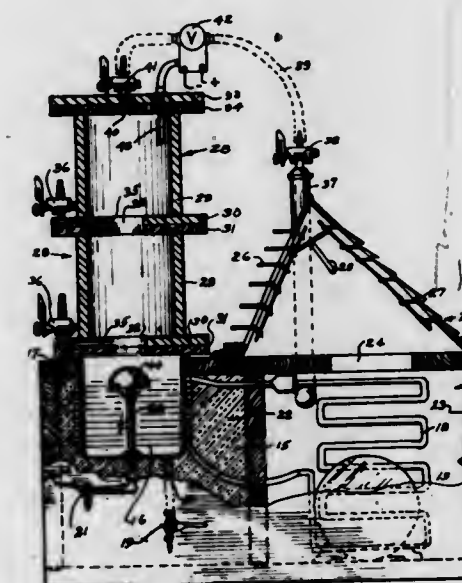
Joseph L. Dantoni, Rte 6, Westminster, Md. 21157

Filed June 12, 1969, Ser. No. 832,701

Int. Cl. F26b 13/30

U.S. Cl. 34-92

12 Claims



A lyophilizing apparatus having a refrigeration system including an evaporator section and a condenser section, the evaporator section refrigerating a well-shaped cold trap over

A freeze-drying apparatus includes a vacuum chamber, and a drying bed arranged within the vacuum chamber, which drying bed has the shape of a helix disposed about a vertical axis. Means are provided for supplying the frozen particles at one end of the drying bed, for moving the particles along the drying bed, for retaining the particles on the bed while they are being moved, and for removing the particles from the other end of the drying bed. Means are also supplied which heat the frozen particles while they are being moved along the bed so as to aid sublimation.

3,574,952
DRYING APPARATUS

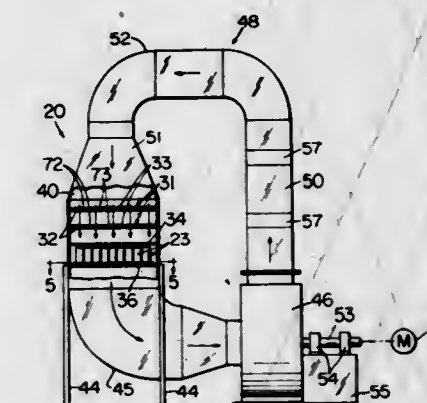
Harry W. Lee, Jr., Richmond, Va., assignor to Reynolds Metals Company, Richmond, Va.

Filed Apr. 22, 1969, Ser. No. 818,215

Int. Cl. F26b 25/00

U.S. Cl. 34-105

17 Claims



An apparatus for and method of drying articles such as tubular containers each having a bottom wall, an adjoining

sidewall, and an open end wherein said containers are supported in an inverted position and a drying gas moved therepast in such a manner that it circulates around and within the containers and provides efficient drying of both the interiors and exteriors thereof.

3,574,953

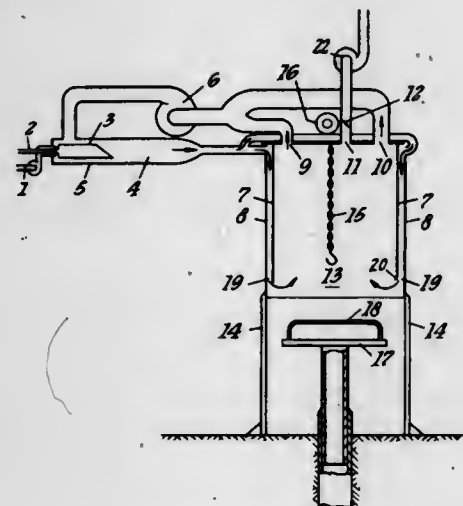
DRYING AND CURING OVENS

Dennis George Furnell, Blackheath, London, England, assignor to Ayrodev Processes Limited, Poplar, England
Filed Feb. 20, 1969, Ser. No. 800,903
Claims priority, application Great Britain, Sept. 24, 1968, 45284

Int. Cl. F26b 19/00

U.S. Cl. 34-219

3 Claims



In a drying and curing oven heated air is introduced through the lower open end of a drying compartment and rises and makes intimate contact with an article supported in said compartment, and used air is exhausted through one or more ducts extending from a closed top of the compartment. If desired, the exhausted used air is discharged to a burner for heating incoming drying air and is recirculated with the latter to said drying compartment.

3,574,954

OPTICAL EDUCATIONAL TOY

Peter Schone, Stuttgart; Horst Link, Boblingen, and Manfred Berrer, Stuttgart-Feuerbach, Germany, assignors to Franckh'sche Verlagshandlung W. Keller & Co., Stuttgart-O, Pfisterstrasse, Germany
Filed Nov. 14, 1968, Ser. No. 775,792

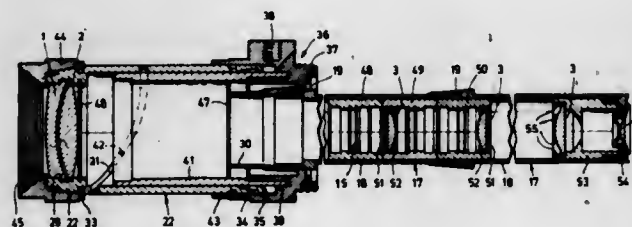
Claims priority, application Germany, Feb. 9, 1968,

P 16 22 137.7

Int. Cl. G09b 23/22

U.S. Cl. 35-19

15 Claims



An optical educational toy comprising a plurality of lenses and diaphragms, mounts for the lenses and diaphragms, tube elements of various diameters for receiving and movably supporting the lenses, diaphragms and mounts in axial alignment, and connecting pieces and housings to permit the construction of various optical instruments such as a single lens reflex camera having a shutter mechanism comprising a mirror support and a shutter element connected together by a pawl which automatically releases upon depression of a button to expose film.

3,574,955
PLANETARIUM USING A RECTANGULAR COORDINATE SYSTEM

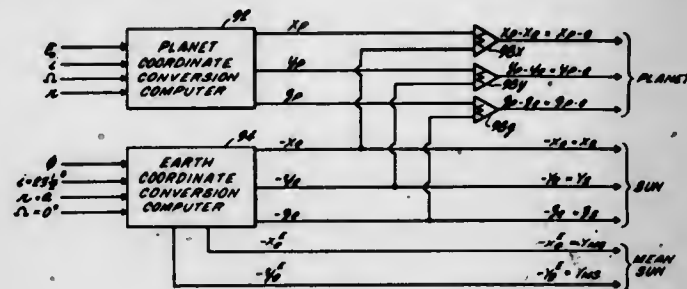
Leonard Skolnick, Harwood, Md., assignor to Planetaria, Inc., Yorklyn, Del.

Filed May 13, 1966, Ser. No. 549,832

Int. Cl. G09b 27/00

U.S. Cl. 35-42.5

18 Claims



A computer for control of a planetarium consisting of separate star field, sun, moon and planet projectors wherein movements of the planets, sun and moon relative to the star field as viewed from outside of, as well as within cis-lunar space may be simulated. The computer serves to control and coordinate the drive means for the various projectors by using the components of a selected viewer position and the various viewed points, at which the projected bodies occur within the star field, relative to the star field and solar origin, for example. The computer translates input coordinates into rectangular or other coordinate components, like components of the various points of which can be accumulated and derives a summation line of sight vector output signal to direct the projection of each projector toward the proper position within the star field.

3,574,956

WRITING SUPPORT

Robert Hamelin, 17 Boulevard Bertrand, Caen, Calvados, France

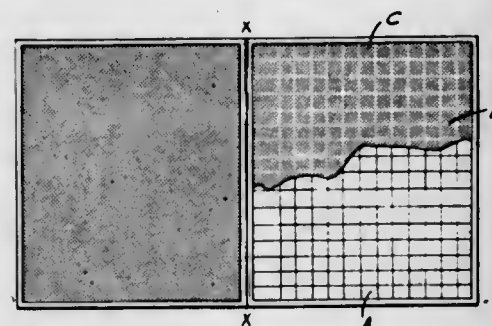
Filed Nov. 18, 1968, Ser. No. 777,552

Claims priority, application France, Nov. 17, 1967, 128640

Int. Cl. B43l 1/10

U.S. Cl. 35-66

5 Claims



An erasable writing pad is formed from a transparent or translucent plastic sheet, e.g. of polyvinylchloride, whose front surface is embossed with rows of hemispherical bulges of about 0.1 mm diameter and a mutual separation equal to or less than that diameter, the rear surface of the sheet carrying a grating overlain by a distinctive color layer.

3,574,957

EDUCATIONAL TUMBLER

Jack D. Bello-Bridick, 820 South Lake St., Los Angeles, Calif.

Filed Nov. 26, 1968, Ser. No. 779,020

Int. Cl. G09b 1/24

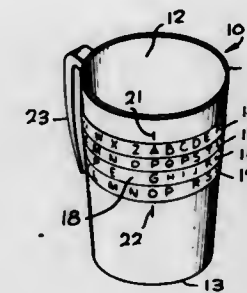
U.S. Cl. 35-76

8 Claims

An educational or instructive tumbler is disclosed herein having a tubular, tapered sidewall integrally formed with a bottom at one end so as to hold fluid therein. A handle is carried on the external surface of the sidewall and is cantilevered therefrom to terminate in spaced-apart relation-

ship with respect to the sidewall. Midway between the opposite ends of the tumbler, the sidewall is provided with a plurality of rotatable bands forming different levels. Each

sole portions of the shoes. The shield may also be a single piece of rubber or other yieldable substance for use in the arch portion of the shoe abutting the heel to prevent the spikes from engaging a solid surface when the golfer is walking on a hard unyielding surface that would dull the spikes.



band carries indicia such as pictorial, alphabetic or numerical characters which, when properly placed in vertical alignment, represents a meaningful relationship.

3,574,958

WADING SHOE

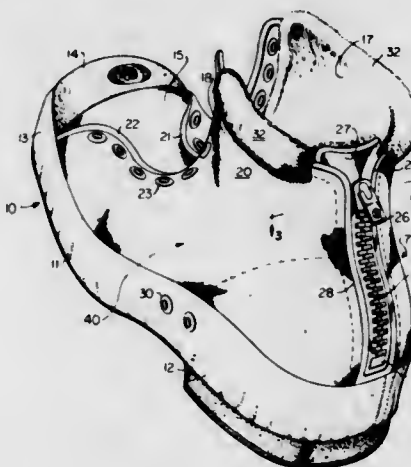
Leon L. Martuch, Midland, Mich., assignor to Scientific Angles Inc., Midland, Mich.

Filed Jan. 30, 1970, Ser. No. 7,069

Int. Cl. A43b 00/00

U.S. Cl. 36-2.5

23 Claims



A wading shoe made from nonwettable, nonwater-retaining material including a nonwettable, nonwater-retaining sole is provided with a quick release closure in addition to the normal lace adjustable means of closing a shoe.

3,574,959

GOLF SHOE SPIKE GUARDING SHIELD

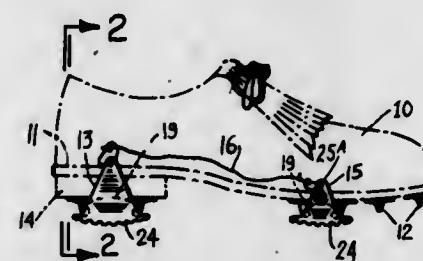
Edward L. Cicero, 52-62 66th St., Maspeth, N.Y. 11378

Filed Sept. 17, 1969, Ser. No. 858,631

Int. Cl. A43b 3/10, 13/22

U.S. Cl. 36-7.6

6 Claims



For the protection of the spikes of golf shoes from wear and dullness when the golfer is walking on a hard surface, such as pavement, gravel or the like, there is provided detachable shields which extend laterally between the shoes, may be made in spaced pairs of rubber or the like for use on the heels and soles of the shoes to fit closely between and against the spikes and have gripping engagement with the

3,574,960
BACKHOE-TYPE SELF-LOADING SCRAPER

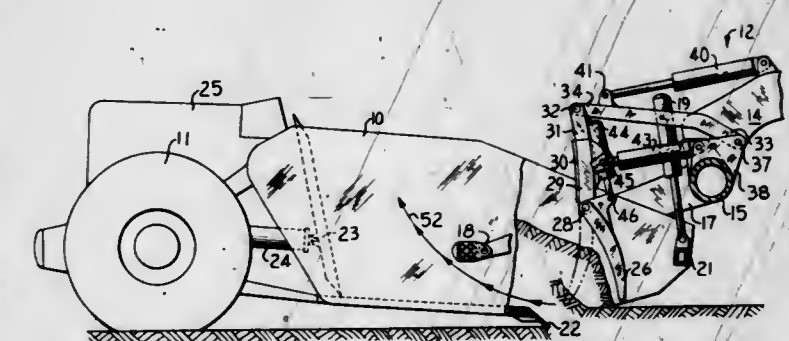
Robert A. Peterson, San Leandro, and Roy J. Barnes, Pleasanton, Calif., assignors to Caterpillar Tractor Co., Peoria, Ill.

Filed Nov. 8, 1968, Ser. No. 785,841

Int. Cl. B60p 1/04

U.S. Cl. 37-4

7 Claims



A self-loading scraper of the kind in which the apron is articulately mounted and powered to be capable of a hoeing action to assist the loading of earth over the blade and into the bowl with the apron support and actuating linkage extending rearwardly from the hitch which connects the scraper with the tractor which draws it.

3,574,961

AUTOMATIC LOADING AND UNLOADING DEVICE

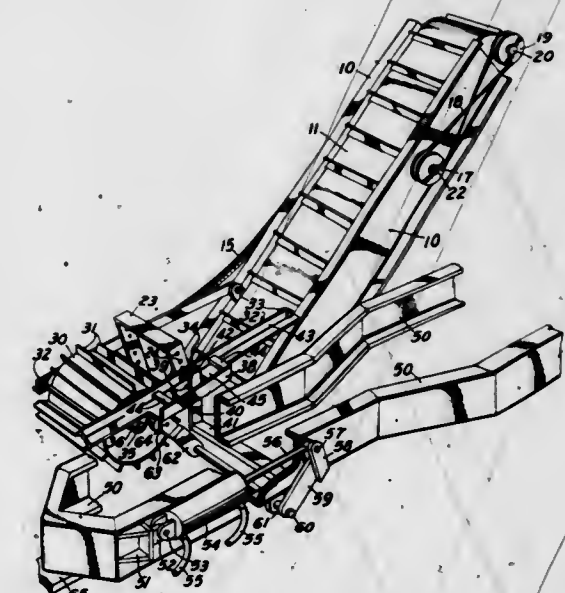
William C. Bond, Rte 1, Clinton, S.C. 29329

Filed June 13, 1968, Ser. No. 736,615

Int. Cl. B60p 1/36

U.S. Cl. 37-8

6 Claims



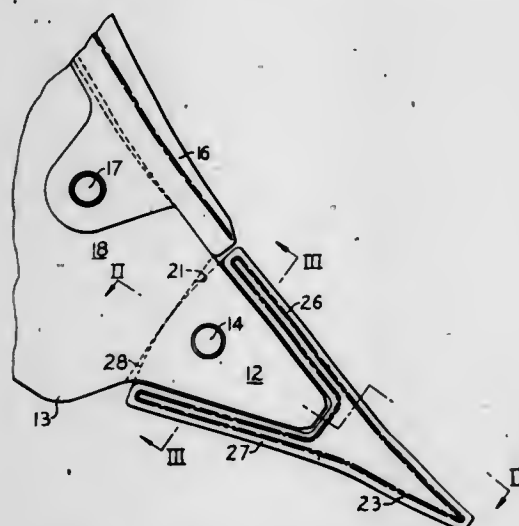
Automatic material loading and unloading apparatus comprising an activating ground wheel, a cutting blade or scoop, a conveyor system, a material holding means and a mechanism for dumping said material from said holding means.

3,574,962
EARTHWORKING TIP MOUNTED FOR LIMITED PIVOTAL MOVEMENT
 Roger M. Smith, Joliet, Ill., assignor to Caterpillar Tractor Co., Peoria, Ill.

Filed Dec. 11, 1968, Ser. No. 782,843
 Int. Cl. E02f 9/28

U.S. Cl. 37-142R

3 Claims

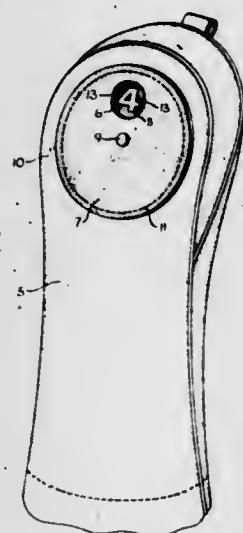


An earthworking tip for mounting upon a wedge-shaped shank, a rearward portion of the tip having an I-beam configuration in cross section with top and bottom flanges generally mating with the wedge-shaped shank and a vertical web integrally joining the flanges and mating with a vertical slot in the shank.

3,574,963
GOLF CLUB COVER
 Monroe H. Rosenow, Brookfield, Wis., assignor to ABC Industries, Inc., Milwaukee, Wis.
 Filed Jan. 31, 1969, Ser. No. 795,502
 Int. Cl. G09f 1/00

U.S. Cl. 40-5

2 Claims



A golf club head cover has the peripheral portion of a circular patch sewed to one wall of the cover. The patch thus formed has a rotatable disc therein. The disc has the numbers of the different golf club woods delineated thereon to be selectively brought into register with a window in the circular patch by rotation of the disc.

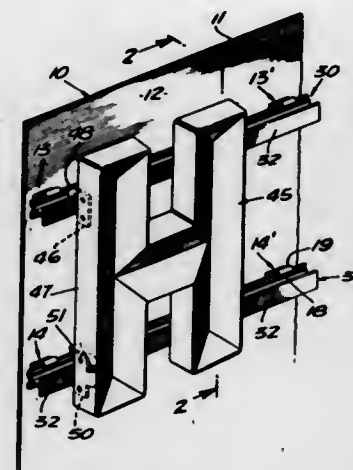
3,574,964
TRACK FOR REMOVABLE SIGN LETTERS
 Lloyd C. Ownbey, Vernon, Calif., assignor to Bevelite Mfg. Company, Vernon, Calif.
 Filed Nov. 20, 1968, Ser. No. 777,234
 Int. Cl. G09f 1/00

U.S. Cl. 40-140

4 Claims

A track system comprising essentially two kinds of parts, namely a row of clips fastened to an appropriate sheet

background wherein the legs of the clips stand forwardly away from the background, and one or more substantially H-shaped tracks wherein opposite edges of one leg of the H are



attached to free ends of respective clips, whereby to mount the track clear of the sheet background, and wherein the leg which is held by the clip is at a location clear of fastening means used to attach the clip to the sheet background.

3,574,965
PROTECTIVE COVER MEANS FOR FIREARMS
 Richard H. Seiger, 5525 Hillside Drive, Salt Lake, Utah
 Filed Jan. 23, 1969, Ser. No. 793,393
 Int. Cl. F41c 27/00, 27/08

U.S. Cl. 42-1

7 Claims



New and improved stock covers for firearms, which covers can remain installed even while the firearm piece is being fired. The subject covers protect particularly exposed areas of the stock from marring as by hitting objects, falling of the firearm piece, and so forth. The stock covers of the invention include suitable openings to provide relief or access areas for certain functional portions of the firearm, and, additionally, means such as flaps and straps for ultimately securing the covers in place. The covers are so designed that side areas of the stock of the firearm are especially protected against damage.

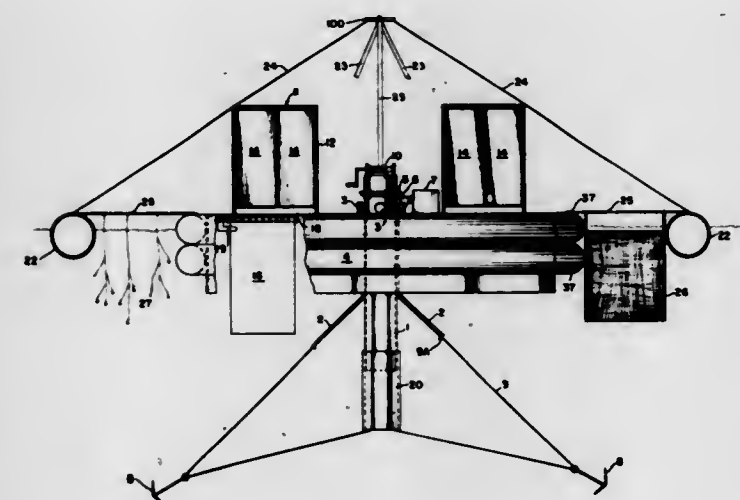
3,574,966
FISHING APPARATUS AND POWER PLANT
 Evan G. Sullivan, P.O. Box 23, Cookeville, Tex. 75558
 Filed May 22, 1969, Ser. No. 826,890
 Int. Cl. A01k 73/00, 75/00

U.S. Cl. 43-8

15 Claims

A buoyant main body has a sleeve extending therethrough anchored to the water bottom to provide a stationary hub about which the buoyant body may rotate by the use of vanes which engage the water and the air to take advantage of the currents thereof. A power plant is mounted on the body and is driven by gearing from the hub. Outwardly of the buoyant

body a large buoyant ring is supported in concentric relation by means of guy wires from a centrally extending derrick and is maintained in proper position by radially extending elements upon which nets, fishhooks and the like for

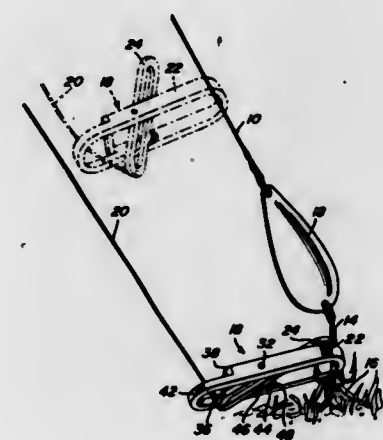


catching fish are mounted so that the rotary movement of the buoyant body and ring cover a large area to attract many fish which are then collected in the usual manner. Means are provided for rendering the current engaging vanes inoperative when the current is opposite the direction of desired movement. The buoyant body may be a boat or a drum and may have the usual power propulsion means.

3,574,967
FISH BAIT RETRIEVER AND REEL ASSEMBLY
 Thaddeus M. Splawinski, Saskatoon, Canada, assignor to Snagaway Tackle Ltd.
 Filed May 8, 1969, Ser. No. 822,981
 Int. Cl. A01k 97/00

U.S. Cl. 43-17.2

7 Claims



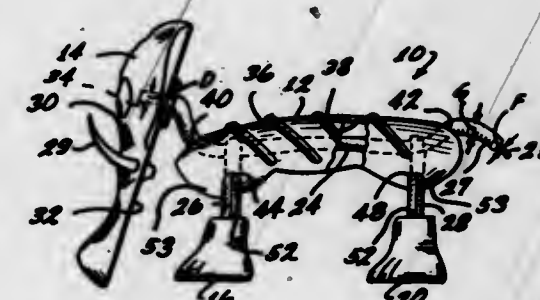
A fish bait retriever in the form of concentric loops hinged together with the outer loop having an entrance slot adjacent to the hinge point for receiving a fishline and the inner loop having a flexible line attached thereto for enabling the retriever to be placed on a fishline and moved by gravity to engagement with a fish lure, hook assembly or the like and the line tensioned to retrieve the bait, lure, hook assembly or the like. The flexible line attached to the inner loop is connected to a belt attached reel that includes a manually rotatable spool having a pocket in the exterior face thereof for frictionally and detachably storing the retriever.

3,574,968
FIGURE TOY
 Floyd E. Schlau; William R. Baynes, Palos Verdes Peninsula; Roger M. Plant, Westminster, and George E. Robson, Torrance, Calif., assignors to Mattel, Inc., Hawthorne, Calif.

Filed Jan. 30, 1969, Ser. No. 795,195
 Int. Cl. A63h 33/00

U.S. Cl. 46-22

5 Claims



Animal figures comprising body parts held together by pipe cleaners, and molds for forming the body parts from pliable plastics.

3,574,969
A WALKING DOLL AND WHEELED SCOOTER COMBINATION
 Dale P. Cleveland, Torrance, and Thomas R. Wilson, Manhattan Beach, Calif., assignors to Mattel, Inc., Hawthorne, Calif.
 Filed Mar. 10, 1969, Ser. No. 805,508
 Int. Cl. A63h 11/02

U.S. Cl. 46-101

5 Claims



A miniature scooter for use with a walking doll to allow the doll to push and ride the scooter. The scooter includes a low flexible platform for receiving one foot of the doll, a hook for loosely capturing the foot on the scooter, and a handlebar that lies immediately in front of the doll's abdomen to prevent forward tipping.

3,574,970
METHOD OF PROPAGATING ROSES BY GRAFTING
 Cornelis Geytenbeek, Woodside, South Australia, Australia, assignor to Alain Meilland, Cap d'Antibes, France
 Filed June 18, 1968, Ser. No. 737,932
 Claims priority, application Australia, June 19, 1967, 23290/67
 Int. Cl. A01g 1/06

U.S. Cl. 47-7

6 Claims

A method of propagating roses by grafting as a veneer onto

cuttings of understock in which the understock cuttings have



plastic or fiberglass. The covers are formed in half sections and are employed in pairs; and

Apparatus for use in a system of forming insulation for pipe fittings such as elbow and T-sections, the apparatus including a work support and a rotatable shaping element projecting thereabove, in which a block of insulation material is moved against the shaping element in a controlled path of travel.

3,574,973

TIRE UNIFORMITY CORRECTION MACHINE

Edwin R. Rader, Tallmadge, Ohio, assignor to Information Development Corporation, Akron, Ohio
Filed July 2, 1968, Ser. No. 741,934
Int. Cl. B24b 49/00

U.S. Cl. 51-165

8 Claims

been unrooted, uncalled and de-eyed.

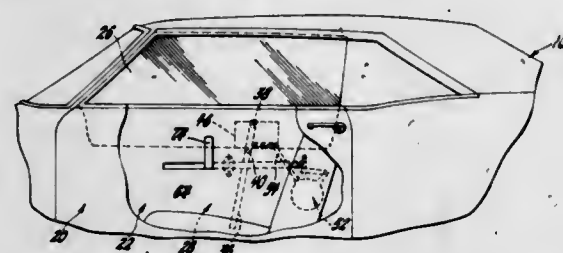
3,574,971

WINDOW REGULATOR ASSEMBLY

Julius Hezler, Jr., Bellaire, Mich., assignor to General Motors Corporation, Detroit, Mich.
Filed Nov. 13, 1969, Ser. No. 876,453
Int. Cl. E05f 11/44

U.S. Cl. 49-350

3 Claims



A window regulator assembly for an automobile type window panel includes a reciprocating input type window operator for vertically shifting the window panel and a reciprocating input arrangement. The input arrangement includes a control member reciprocably shiftable in a track, a draft link reciprocably shiftable to drive the window operator and a blocking member therebetween shiftable and rotatable relative to the track. The blocking member is engageable by means on the control member to rigidly couple the latter to the draft link under a positive or window-controlling input to the control member and is rotatable by the draft link into a movement-blocking position upon a negative input to the window operator directly from the window panel.

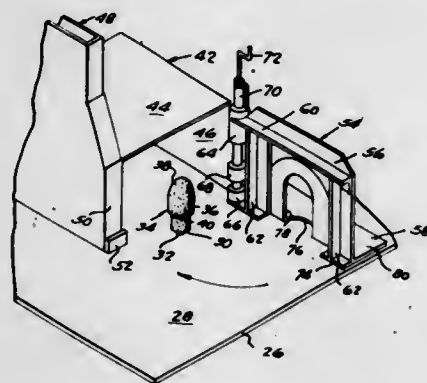
3,574,972

METHOD AND APPARATUS FOR FORMING FITTING COVERS

Dillard Breeding, Nashville, Tenn., and Frieda J. Breeding, Executrix, assignors to Breeding Insulation Company, Inc., Nashville, Tenn.
Filed June 3, 1968, Ser. No. 734,017
Int. Cl. B24b 7/00, 9/00

U.S. Cl. 51-3

4 Claims



Abrasive means are employed to shape covers for conduit fittings from blocks of insulation material, illustratively foam

Grinder heads are moved into position under control of a closed loop servosystem to follow at a predetermined distance above the surface of the tire periphery. The tire runs against a pilot or road wheel having load cell detectors to determine radial force variation in the tire under loaded conditions. Force channels obtaining signals from the load cells provide correction signals to the grinder head servosystem which is updated each tire revolution actuating the grinders to cut small segments from the surface of the tire to cancel out to at least a predetermined minimum the radial force vibrations.

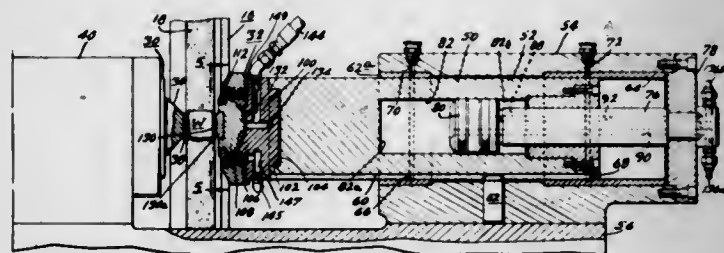
3,574,974

HYDROSTATIC WORK SUPPORT MEANS FOR GRINDERS

Otto Weissing, Towson, Md., assignor to SKF Industries, Inc., King of Prussia, Pa.
Filed May 15, 1968, Ser. No. 729,204
Int. Cl. B25b 5/00; B24b 5/00

U.S. Cl. 51-237

8 Claims



Work support means for grinder having a rotatable grinding wheel comprising a pair of hydrostatic workheads having confronting workpiece engaging members adapted for relative axial movement to support a workpiece. At least one

of the workheads includes a support member having a part-spherical seat, a clamping member having a part-spherical face contoured to conform to said seat which is enlarged to define a small part-spherical chamber for fluid under pressure. Means is provided for mounting the clamping member for a limited universal movement relative to the support member thereby allowing accurate alignment of the workpiece relative to the axis of rotation of the grinding wheel.

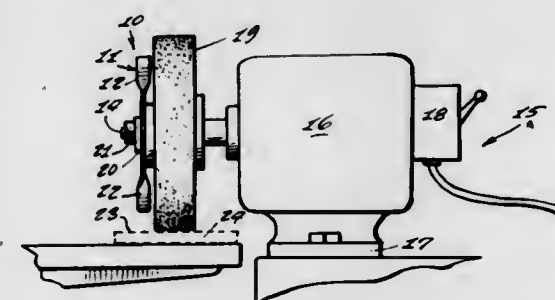
3,574,975

DRY GRINDING WARP PREVENTER

Erich P. Liss, 147 Bryan Hill Road, Milford, Conn.
Filed Nov. 13, 1967, Ser. No. 682,398
Int. Cl. B24b 55/02

U.S. Cl. 51-266

1 Claim



A fan unit securable to a grinding wheel of a grinder, the fan providing a cooling breeze directed against the surface being ground, so to keep down the temperature thereof and resultant warpage of the work.

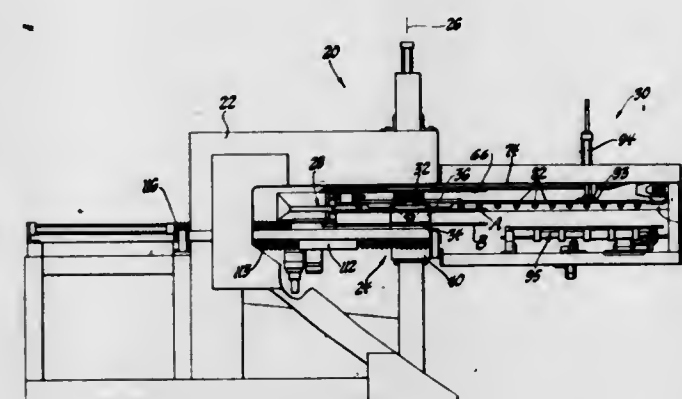
3,574,976

METHOD FOR CUTTING AND GRINDING GLASS

Harold A. McMaster, Woodville, Ohio, assignor to Permaglass, Inc., Millbury, Ohio
Filed Feb. 5, 1968, Ser. No. 702,978
Int. Cl. B24b 1/00; B26d 7/06

U.S. Cl. 51-283

20 Claims

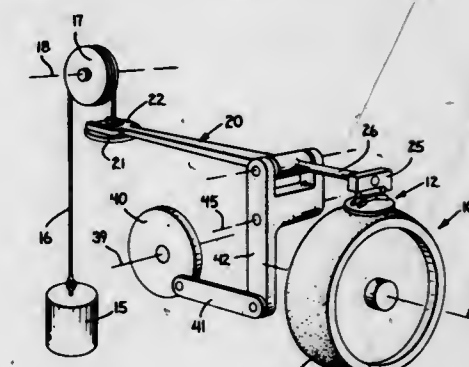


A method for sizing a sheet of glass wherein the sheet of glass is disposed in a predetermined position on an axis and rotated relative to a cutting means so that the sheet is cut in a predetermined peripheral pattern relative to the axis and wherein the sheet is maintained in the same predetermined position relative to the axis (i.e., the axis passes through the same point in the sheet) while the sheet is again rotated relative to a grinding means so that the periphery of the cut sheet is ground.

3,574,977
PROCESS OF FORMING A LENS BLANK
John D. Spragg, Indianapolis, Ind., assignor to Textron Inc.
Original application Sept. 29, 1966, Ser. No. 582,931, now Patent No. 3,449,198, dated June 10, 1969. Divided and this application Sept. 16, 1968, Ser. No. 759,989
Int. Cl. B24b 1/00

U.S. Cl. 51-284

3 Claims



A method of forming a lens wherein a lens blank is ground on its concave side while mounted by a glass nubbin formed integrally with the lens blank on the convex side thereof.

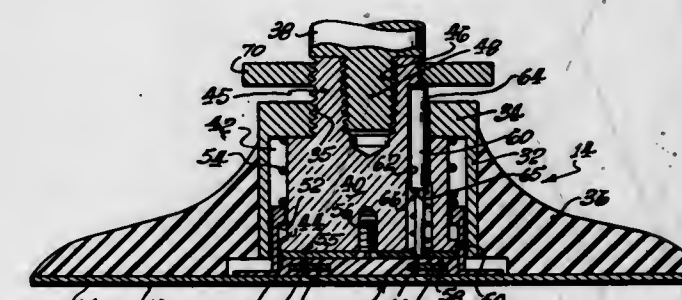
3,574,978

MEANS TO RELEASABLY ATTACH AN ABRASIVE DISK TO A ROTARY DRIVER

Aleck Block, Los Angeles, Calif., assignor to Merit Abrasive Products, Inc., Los Angeles, Calif.
Filed July 16, 1969, Ser. No. 842,254
Int. Cl. B24b 17/00

U.S. Cl. 51-377

21 Claims



For releasably mounting an abrasive disc on a rotary driver that has angular driving fingers, a molded hat-shaped plastic hub on the back of the disc has inclined webs for engagement by the fingers with tightening action, the webs being reinforced by integral ribs and a central boss.

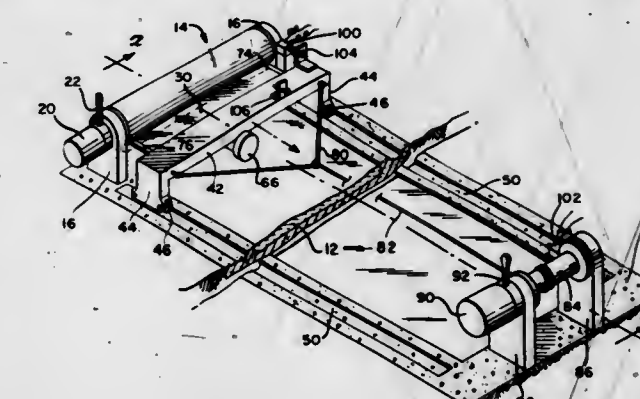
3,574,979

INFLATABLE COVER

John Y. S. Chan, 10065 Elm Ave., Loma Linda, Calif.
Filed June 6, 1969, Ser. No. 830,974
Int. Cl. E04g 11/04

U.S. Cl. 52-2

14 Claims



A cover is formed of a sheet of substantially liquid impervious flexible material. The sheet of material is wound

upon a support means, and one end of the sheet of material is secured to a movable carriage. Drive means is connected with the carriage for selectively moving it toward and away from the support means. Inflatable means in the form of tubular members are secured to the underside of the sheet of material, and means is provided for selectively inflating and deflating the inflatable means.

3,574,980

SHELF BRACKET FOR PANELLED WALLS

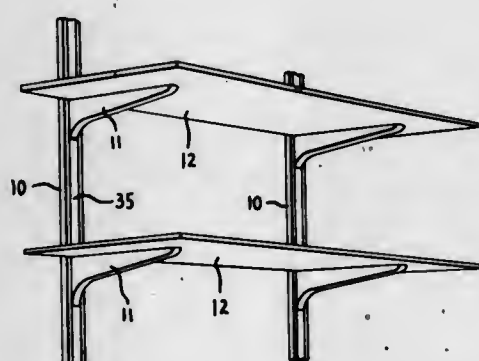
James R. Keller, Beaverton, Oreg., assignor to Woodcarve Products, Inc., Palo Alto, Calif.

Continuation-in-part of application Ser. No. 758,824, Sept. 10, 1968, now abandoned. This application May 5, 1969, Ser. No. 821,683

Int. Cl. A47g 29/02

U.S. Cl. 52-36

2 Claims



A wooden construction is disclosed comprising a bracket supported by a single screw in a grooved vertical standard. The groove prevents the bracket from twisting on the screw. Screw holes are provided at intervals in the bottom of the groove so that the bracket may be shifted up or down on the standard. Portions of the groove not occupied by the bracket are filled by a filler strip. The back side of the standard has a central tongue to fit between the edges of two adjacent wall panels whereby the standard also serves as a molding strip to cover the joint between the panels.

3,574,981

ADJUSTABLE BRACE

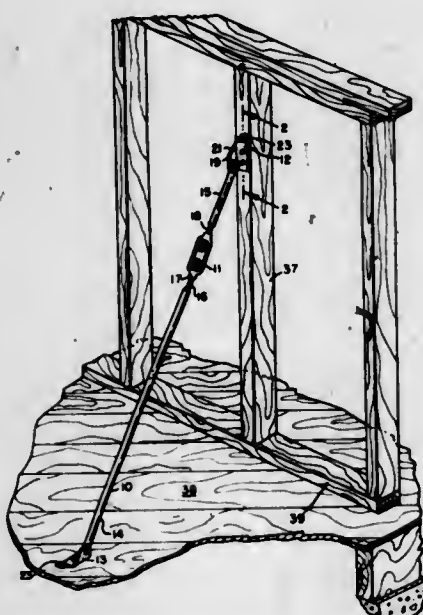
Herbert H. Henschen, Norwood, Minn., assignor to Scepter, Inc., Minneapolis, Minn.

Filed Sept. 25, 1968, Ser. No. 762,535

Int. Cl. E04g 25/06, 21/26

U.S. Cl. 52-127

10 Claims



An adjustable brace for use by carpenters in the erection and plumbing of vertical walls during construction is

disclosed. The brace comprises an elongated strut with a hinged wall anchor at one end and a hinged floor anchor at the other. This strut is suitably formed of two tube or pipe members of unequal length in end-to-end alignment and coupled together near the wall anchor end by a turnbuckle. When adjusted to its maximum length by manipulation of the turnbuckle, the strut is between 6 and 11 feet in length; and when adjusted to its minimum length, the strut is between 5 and 9 feet in length. Preferably it is about or approximately 8 feet in length, with its length adjustable over a span of at least 2 inches. At least one of the pivotally hinged anchors of the adjustable brace is characterized by having a lift-lip member under which the claw of a carpenter's hammer is easily inserted to pry the anchor from a temporarily nailed position.

In use, the wall anchor of one or more braces is temporarily nailed to a frame member of a preform structure designed for placement as a vertical wall in a building. Then the wall is placed in an estimated approximately plumb vertical orientation; and the floor anchors are temporarily nailed to the floor of the building. Turnbuckle adjustment is accomplished to place the wall in a true plumb vertical position, in which position the wall is held by the brace (or several braces) until sufficient structural elements have been added to the building to permanently hold the wall in position.

3,574,982

INSTALLATION FOR ONE OR MORE STACKS

Friedrich Wakonig, Graz, Austria, assignor to Waagner-Biro A. G., Vienna, Austria

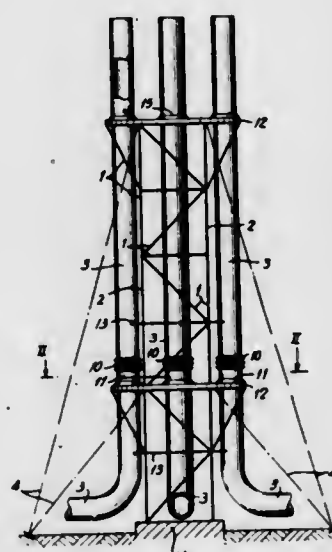
Filed Dec. 18, 1968, Ser. No. 784,695

Claims priority, application Austria, Dec. 19, 1967, 11429/67

Int. Cl. E04h 12/10, 12/28

U.S. Cl. 52-148

7 Claims



An installation for at least one stack in the form of a tubular chimney stack made of steel for example. The installation includes a trusswork tower and at least one stack extending alongside the tower at the exterior thereof. A means as provided for fixing the stack to the tower, and suitable stay cables can be operatively connected with the tower for staying the latter against lateral forces.

3,574,983

COOL WALL MODULAR CHIMNEY

Peter A. Kreider, 1307 Denice Court, and Richard D. Pepworth, 639 Cottonwood Drive, Brea, Calif.

Filed Feb. 10, 1969, Ser. No. 797,752

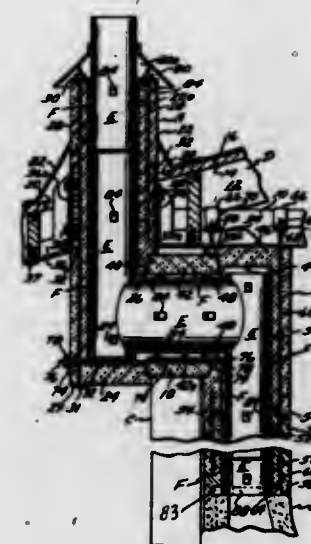
Int. Cl. E04d 13/14; E04f 17/02

U.S. Cl. 52-219

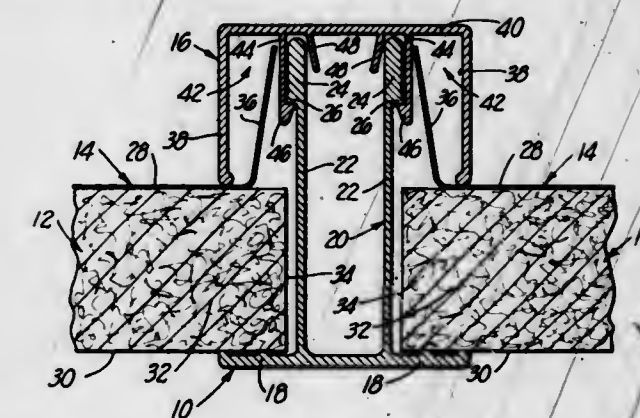
9 Claims

A free standing cool wall chimney that is formed from a number of modular sections of thermal insulation material which may be supported in whole or in part from a roof structure. The chimney is particularly adapted for use with a preformed fireplace, and surrounds a flue pipe that extends

upwardly from the fireplace to cooperate with the flue pipe to define an annulus-shaped passage therein. Air is admitted into the lower portion of the passage to be subsequently heated by the flue pipe. The heated air moves upwardly in



layers of shape self-sustaining material are portioned over the panel upper surfaces and have edge portions which project upwardly from the panel edge portions and terminate spaced upwardly from said panel edge portions. An inverted U-shaped cap is positioned over the beam webs and has downwardly projecting leg portions transversely outwardly of the edge portions of the panel upper layers, said leg portions terminating downwardly overlying said panel upper layers.



the passage to discharge from the upper end thereof, and in so doing, maintains the chimney in a cool condition. The chimney is further maintained in a cool condition due to the sections thereof being fabricated from a heat insulation material.

3,574,984

CORNER INSERT DEVICE

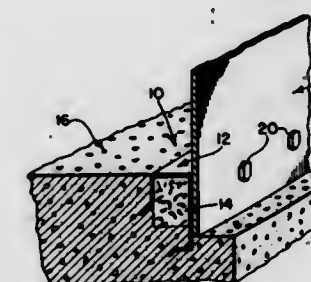
Ignatius A. Chap, Oak Lawn, Ill., assignor to Illinois Tool Works, Inc., Chicago, Ill.

Filed Feb. 10, 1969, Ser. No. 797,793

Int. Cl. E04b 2/72; E04c 3/29

U.S. Cl. 52-374

7 Claims



An insert for the outside corner of concrete floors or the like provides at least one exposed surface to permit attachment to a fastening element which, in turn, secures a wood, metal or concrete section relative to the floor or the like. To facilitate the attachment, a concrete void is created immediately behind the surface of the insert to which the fastening element is attached.

3,574,985

PANEL AND BEAM ROOF ASSEMBLY FOR BUILDING STRUCTURE

William C. Pierce, Glendora, Calif., assignor to Joseph A. Garcia, Encino, Calif., fractional part interest to each and Roy C. Garcia, Panama City, Panama, fractional part interest to each

Continuation-in-part of application Ser. No. 679,903, Nov. 1, 1967, now abandoned. This application Feb. 28, 1969, Ser. No. 803,194

Int. Cl. E04d 3/366

U.S. Cl. 52-463

2 Claims

A horizontal beam of inverted generally T-shaped vertical cross section supports edge portions of generally horizontal roof panels on transversely oppositely depending base flanges of said beam with a beam central web portion projecting upwardly between said panel edge portions, preferably in the form of transversely spaced vertical webs. Water proof upper

Transversely spaced webs project downwardly from the cap internally thereof and hook engage the beam webs retaining the cap and beam in assembly, with angled guides preferably being formed on the cap for guiding the beam webs into such assembly. Thus, the upwardly projecting edge portions of the panel upper layers provide water barriers internally of the cap for preventing water from flowing transversely into the assembly and downwardly along the inner edges of the panels.

3,574,986

APPARATUS FOR VERTICALLY LOADING CARTONS

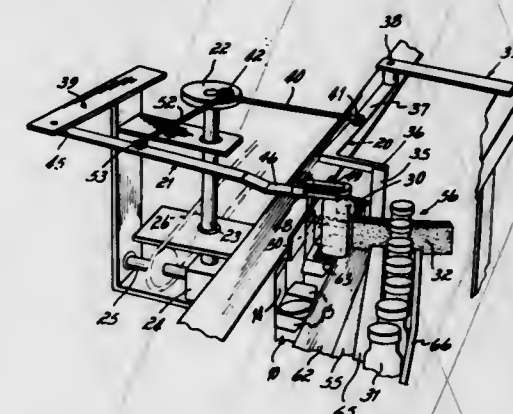
Julian A. Dieter, Cincinnati, Ohio, assignor to R. A. Jones & Company, Inc., Covington, Ky.

Filed Oct. 14, 1968, Ser. No. 767,157

Int. Cl. B65b 5/04

U.S. Cl. 53-35

18 Claims



Method and apparatus for conveying cartons with their upper ends open, conveying articles to a location adjacent and above the cartons and for moving the articles from the article conveyor and dropping them into cartons carried on the carton conveyor.

3,574,987

VACUUM DEAERATOR DEVICE

Sigmund P. Skoll, Elmwood Park; Chester J. Witt, Deerfield; Harry G. Mojonner, River Forest, Ill., assignors to Mojonner Bros. Co., Chicago, Ill.

Continuation of application Ser. No. 738,704, June 30, 1968, now abandoned. This application Feb. 18, 1970, Ser. No. 12,900

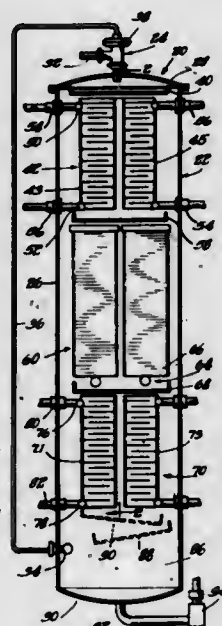
Int. Cl. B01d 19/00

U.S. Cl. 55-193

2 Claims

A vacuum deaerator including an enclosed, evacuated housing having an inlet at the upper end thereof and an

outlet at the lower end. The deaerator includes a series of plate assemblies mounted within the housing in superposed relationship, as follows: a first, heating assembly mounted immediately below the inlet to heat incoming liquid to a predetermined temperature; a second assembly which receives the heated liquid from the first assembly to expose



said liquid to the vacuum established within the housing and thereby thoroughly deaerating said liquid; and a third, cooling assembly disposed beneath the second assembly which receives the deaerated liquid and cools same to a predetermined temperature in preparation for carbonation of said liquid.

3,574,988 AIR FILTERS

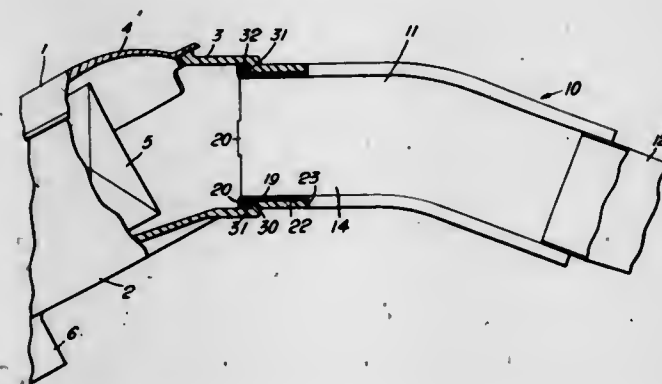
Kenneth Ernest Buckman, Windsor, near Woodlands, England, assignor to General Motors Corporation, Detroit, Mich.

Filed May 21, 1969, Ser. No. 826,449
Claims priority, application Great Britain, May 22, 1968, 24515/68

Int. Cl. B01d 27/08

U.S. Cl. 55—418

2 Claims



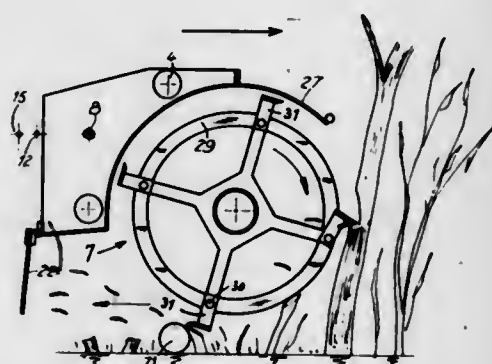
In order to enable the air intake tube of an air cleaner and silencer to be moved to a warm air or a cold air position the air intake tube and a spigot on the air cleaner casing have cooperating shoulders between which a circular spring is interposed and the end of the intake tube and the spigot have interengageable castellations by which the intake tube is secured against rotation from one position by the action of the spring but can be pulled axially to disengage the castellations and permit rotation of the tube to another position relative to the cleaner casing.

3,574,989 ROTOR-TYPE GRINDER

Louis Rousseau, and Joseph Rousseau, 8, Avenue August Wissel, Neuville sur Saone, Rhone, France
Filed June 12, 1967, Ser. No. 645,184
Int. Cl. A01d 35/24

U.S. Cl. 56—10.7

5 Claims



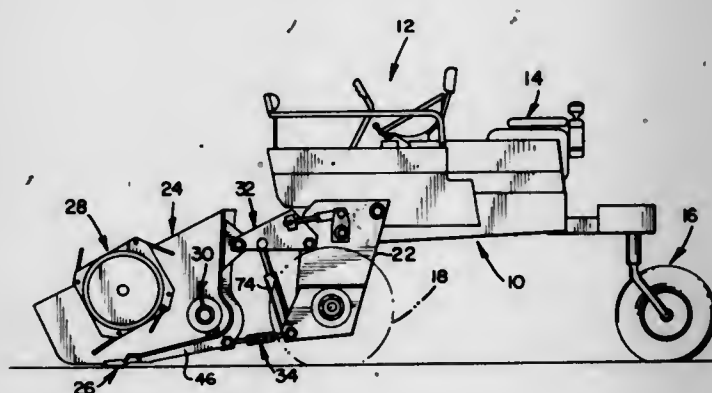
Rotor-type grinder attachable to a tractor and the like vehicle, for carrying at the end of a supporting arm a rotary grinder for chopping parasitic vegetation and the like. Mechanisms are provided for adjusting the position of the tool relative to the vehicle and the soil. The supporting arm has a telescoping system actuated by hydraulic cylinders, for moving the tool toward and away from the vehicle. A gear system is provided for imparting rotational movement to the tool with respect to the supporting arm. Preferably, a linkage is secured between the vehicle and a portion of the arm, intermediate the vehicle and the tool, and hydraulic cylinders for adjusting the angular position of the linkage and thereby raising the lowering the tool together with the arm.

3,574,990 SUPPORT AND LINKAGE SYSTEM FOR HARVESTER PLATFORMS

Robert A. C. Calder, Hamilton, Ontario, Canada, assignor to International Harvester Company, Chicago, Ill.
Filed Apr. 21, 1969, Ser. No. 817,748
Int. Cl. A01d 67/00

U.S. Cl. 56—208

10 Claims



A self-propelled windrower having a wheeled frame and a harvester platform disposed forwardly of the frame for cutting and swathing a crop. The platform is mounted on the frame by arm means and is movable vertically by hydraulic lift cylinders. The platform is floatably suspended by torsion bar assemblies which are interconnected between the frame and arm means.

3,574,991 MULTIFILAMENT SYNTHETIC YARN PRODUCTS

Thomas T. Constantine, South Easton, Mass., assignor to Fabric Research Laboratories, Inc., Dedham, Mass.
Filed Feb. 17, 1969, Ser. No. 799,684
Int. Cl. D02g 3/24

U.S. Cl. 57—140

4 Claims



Multifilament, thermoplastic, synthetic yarn has acute angled pleats substantially in a single plane as a result of being formed into a flat pleated ribbon composed of a series of adjacent such yarns and being thereafter dissociated from said ribbon form by separating the individual yarns. The characteristics of the ribbon as an intermediate useful product are described as well as the method for making the pleated ribbon.

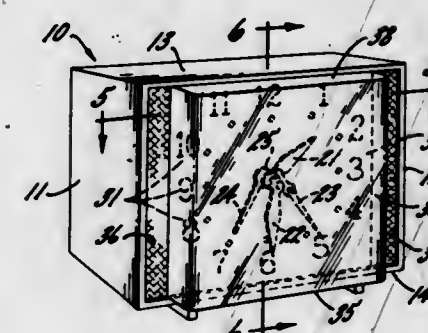
midnight) is indicated by again illuminating the sixth or midpoint cell, the distinction between the sixth and 12th hour being established by a difference in panel color. Five-minute increments, which are 11 in number, running from five minutes to 55 minutes, are indicated by sequentially illuminating cells one to 11, but in a color distinct from the hour indications.

3,574,993 ILLUMINATED CLOCK CONSTRUCTION

John H. Black, Hull, Ga., assignor to General Time Corporation, Stamford, Conn.
Filed Oct. 17, 1969, Ser. No. 867,227
Int. Cl. G04b 19/30

U.S. Cl. 58—50

13 Claims



A compact illuminated clock intended for constant illumination which includes an especially constructed transparent light diffuser for diffusing light evenly to a translucent dial, the diffuser having an integral rearwardly extending wing for mounting a low intensity lamp, a transparent lens in front of the dial, and adjacent side panels formed with a pattern of pyramidal embossments which pick up the incident light to produce a jeweled appearance during the day and which are illuminated by the diffuser at night.

3,574,992 LINEAR TIME COLUMN

George T. Ladas, 937 Second Ave., New York, N.Y.
Filed Oct. 13, 1969, Ser. No. 865,641
Int. Cl. G04c 19/30

U.S. Cl. 58—50

5 Claims



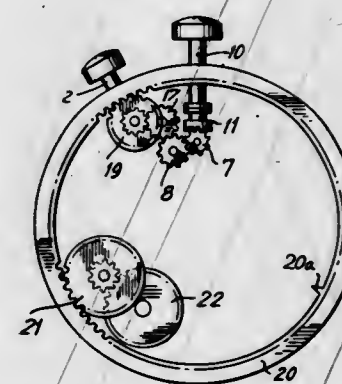
A linear time display clock in the form of a column having a translucent face behind which is a vertical stack of 11 cells. Electric bulbs in the cells are selectively activated by an electrical control circuit operated by a timer, whereby the cells are sequentially illuminated to provide a colored panel on the face of the column whose position is indexed linearly to indicate the passage of time. The hours one to 11 are indicated by illumination of cells one to 11, respectively, going from top to bottom, whereas the 12th hour (noon and

3,574,994 WHEEL TRAIN OF ALARM WATCHES

Tadahiro Kikuchi, Tokyo, Japan, assignor to Kabushiki Kaisha Daini Seikosha, Tokyo, Japan
Filed Jan. 2, 1969, Ser. No. 789,115
Claims priority, application Japan, Jan. 5, 1968, 43/441
Int. Cl. G04b 23/00

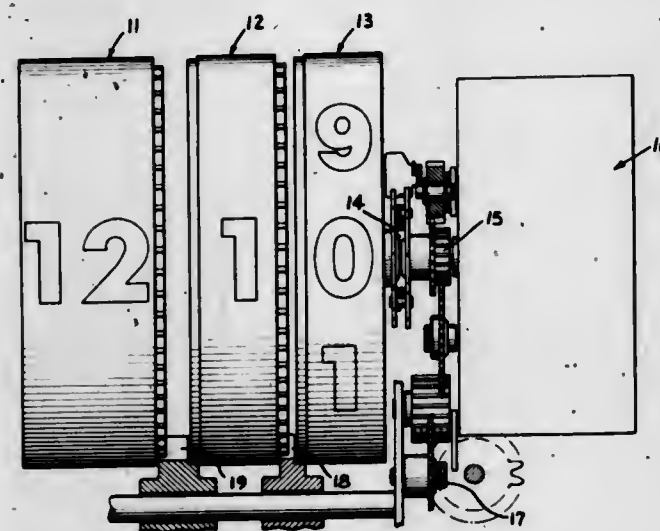
U.S. Cl. 58—57.5

2 Claims



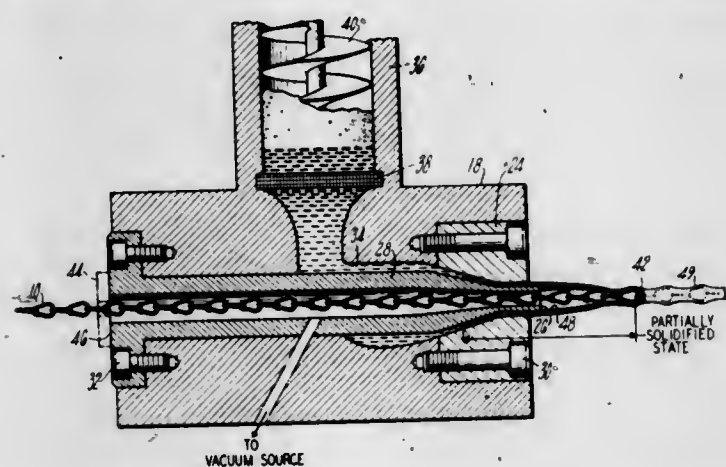
An improved alarm watch having a second hour wheel rotatably mounted on an arbor spaced from the center of said watch and operatively coupled to the hour wheel of said watch for rotation thereby. Said watch includes an unlocking wheel also rotatably mounted on said arbor and in operative engagement with the alarm setting wheel for rotation thereby. The unlocking wheel is provided with a plurality of projections adapted for registration with like apertures formed in said second hour wheel, said unlocking wheel being displaceable longitudinally along said arbor when said projections are in registration with said apertures for the actuation of the alarm hammer.

3,574,995
DIGITAL TIMEKEEPING DEVICE WITH IMPROVED INDEXING MECHANISM
 Vernon P. Turner, Davidson, N.C., assignor to General Time Corporation
 Filed Oct. 8, 1969, Ser. No. 864,585
 Int. Cl. G04b 19/02
 U.S. Cl. 58—125



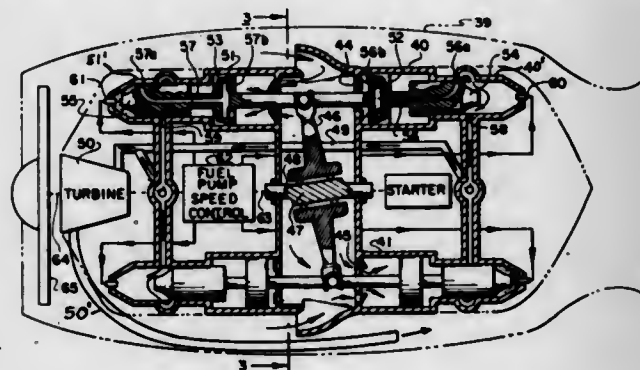
A time-keeping device providing digital visual indication of the time. Indexing means are provided to permit digital visual indication of the time in terms of full integers. The indexing means utilized includes a cam wheel and an index wheel, the camming surfaces of the cam wheel being sloped in reverse of the ratchet teeth of the index wheel. A pawl is provided to engage the ratchet teeth of the index wheel until released by the camming surfaces of the cam wheel whereupon the index wheel rotates as a result of being continuously urged to rotate in the same direction as the cam wheel. The rotation of the index wheel is limited to a predetermined angular amount by means acting between the two wheels. Means are provided for permitting setting and adjustment of the indexing mechanism in order to cause the indicating means to permit visual observation of the correct time.

3,574,996
TUBULAR SHEATHED CHAIN
 August W. Loos, Rte. 169, Pomfret, Conn.
 Filed Jan. 17, 1969, Ser. No. 791,926
 Int. Cl. B21 11/00
 U.S. Cl. 59—78



A tubular sheathed chain having an undulate sheath conforming to links of the chain and continuously urging it toward a fully extended condition, while maintaining its flexibility which is formed by extruding a tubular plastic sheath about a link chain being fed along a path and continuously collapsing the sheath at a predetermined point in the path downstream of a sheath forming station such that the sheath is collapsed into contact about the chain while in a relaxed plastic condition.

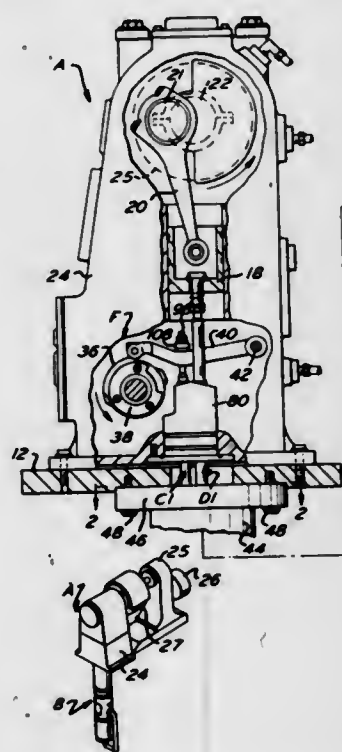
3,574,997
HIGH PRESSURE HOT GAS GENERATOR FOR TURBINES
 Gerald H. Syrov, 1321 Georgina Ave., Santa Monica, Calif.
 Filed Mar. 26, 1969, Ser. No. 810,453
 Int. Cl. F02b 37/04; F02k 5/02
 U.S. Cl. 60—13



A constant displacement air compressor is combined with a reciprocating type combustion chamber utilizing a modified diesel cycle process in such a manner that substantially all of the power developed by the reciprocating combustion chamber is employed to drive the air compressor. The air compressor in turn provides scavenging air to displace the combusted gases in the reciprocating combustion chamber, the scavenged air and gases constituting extremely high-pressure hot gas. This generated gas may then be directed to drive a turbine, power from the system for external work being derived from the turbine.

This invention relates generally to power plants for both mobile including aircraft and boats and stationary use and more particularly to a high-pressure hot gas generator for driving turbines.

3,574,998
CRYOGENIC EXPANSION ENGINE
 Hans Von Bredow, Worthington, and William W. Vogelhuber, Columbus, Ohio, assignors to Pennwalt Corporation, Philadelphia, Pa.
 Filed May 5, 1969, Ser. No. 821,879
 Int. Cl. F01b 31/00; F01k 25/00; F25d 9/00; F25b 9/00
 U.S. Cl. 60—36

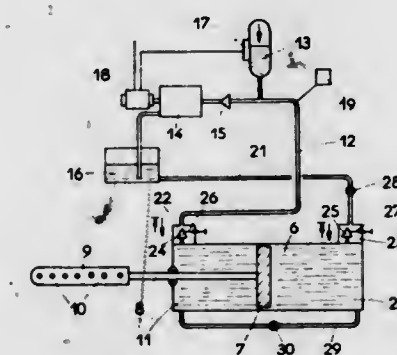


A cryogenic gas-expansion engine which includes a cold end having a piston reciprocable within a cylinder and valves controlling the admission and exhausting of gas from the cylinder so as to effect isentropic expansion of the gas within

the cylinder, and a warm end with means for transforming reciprocating motion into rotary motion. The piston rod and the valve-lifting rods include long tubular intermediate portions to inhibit conduction of heat from the warm-end to the cold-end cylinder. Both the piston rod as well as the valve-lifting rods are all stressed in tension during the actuating portion of their strokes to prevent compressive forces which might buckle the tubular portions. The intake valve constitutes an outward opening spring-closed poppet with its valve head abutting against an exterior seat outside the cylinder. The exhaust valve is an inward opening spring-closed poppet whose head abuts an interior seat within the cylinder. An exhaust rod rocker arm converts the tensioning force which actuates the exhaust valve to a compressive force on the solid shank of the valve stem in order to push open the exhaust valve.

3,574,999
SYSTEM FOR CONTROLLING A TENSIONING CARRIAGE FOR A TRACTION CABLE FOR AN INGOT TRUCK

Andre Nectoux, Le Creusot, France, assignor to Societe Des Forges Et Ateliers Du Creusot, Paris, France
 Filed Apr. 11, 1969, Ser. No. 815,480
 Claims priority, application France, May 6, 1968, 150649
 Int. Cl. F03c 1/16
 U.S. Cl. 60—51

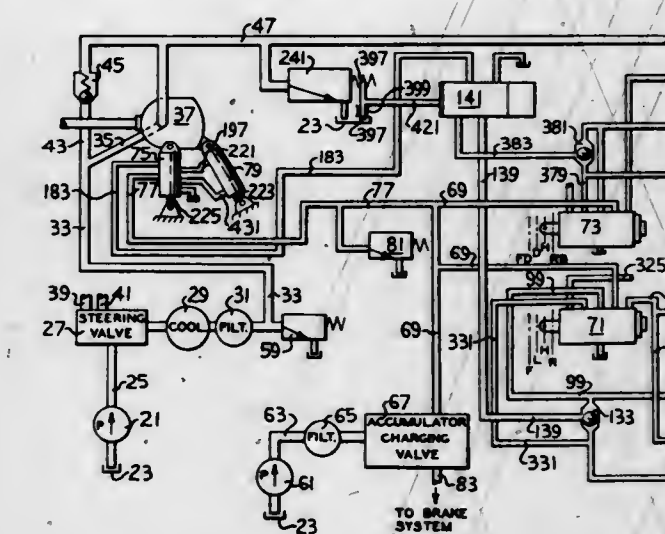


This invention relates to steelworks installations provided with an ingot truck drawn by a cable. The invention relates to the system for controlling the cable-tensioning carriage. It is characterized in that the said system comprises a hydraulic jack whose two elements, i.e. cylinder and piston, are respectively connected to a fixed part of the installation and attached to the tensioning carriage, one of the jack chambers communicating with a pressure circuit while the other chamber communicates with a liquid tank via two conduits each containing a valve which opens completely to supply the corresponding chamber and closes partially to allow liquid to escape from said chamber, means for limiting the rate of flow being provided for such escape. This system eliminates any danger of cable oscillation.

3,575,000
HIGH PRESSURE IMPLEMENT HYDRAULIC CIRCUIT
 John L. Hufeld, Peoria; Donald J. Larson, Joliet; Howard A. Marsden, Pekin; James P. Mueller, East Peoria, and William B. Norick, Joliet, Ill., assignors to Caterpillar Tractor Co., Peoria, Ill.
 Continuation-in-part of application Ser. No. 814,003, Apr. 7, 1969, now abandoned. This application Oct. 21, 1969, Ser. No. 868,964
 Int. Cl. F15b 15/18

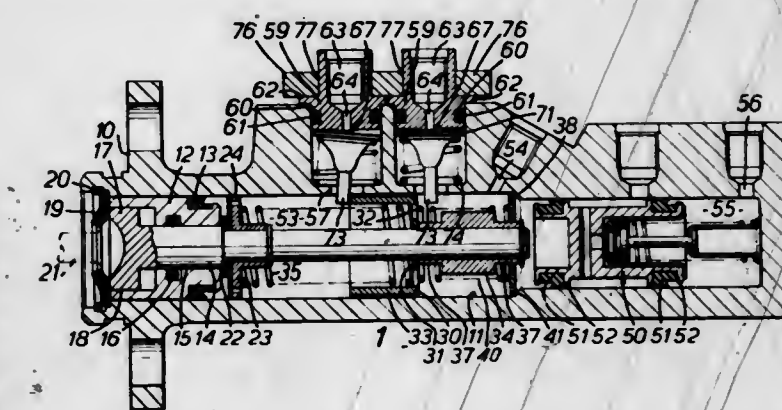
A relatively low pressure hydraulic control system for a high pressure work output system in which a control valve is selectively actuated to position a variable displacement axial piston pump to control the flow in the work output system and to position a directional valve which controls the direction of work output. In such a system wherein two work outputs are provided, thereby requiring two control valves, a

priority valve may be utilized in the low pressure system so that a signal from one of the control valves will always



override a signal from the other control valve in controlling the axial piston pump.

3,575,001
MASTER CYLINDER FOR BRAKING SYSTEMS
 Alexander J. Wilson, and Stuart B. Dawson, Warwickshire, England, assignors to Girling Limited, Birmingham, England
 Filed June 16, 1969, Ser. No. 833,619
 Claims priority, application Great Britain, June 14, 1968, 28,298/68
 Int. Cl. F15b 7/00
 U.S. Cl. 60—54.6

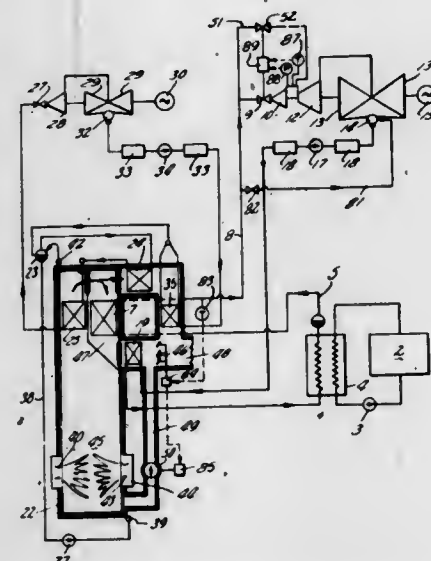


In a master cylinder a spring loaded tilting valve controls communication between a source of fluid, such as a reservoir of high pressure supply, and a pressure space in the cylinder, and the tilting valve comprises a head member mounted on the upper end of a stem. The head member is adapted to seat against a valve seating member surrounding a port for connection to the source of fluid, and an annular projection is provided on one of the members for engagement with a complementary surface on the other member.

3,575,002
COMBINATION FOSSIL FUEL AND SUPERHEATED STEAM NUCLEAR POWER PLANT
 Romul E. Vuia, Laval Sur Le Lac, Quebec, Canada, assignor to Combustion Engineering Inc., Windsor, Conn.
 Filed Jan. 3, 1966, Ser. No. 518,065
 Claims priority, application Canada, June 15, 1965, 933,371
 Int. Cl. F01d 13/00

A power plant arrangement including a nuclear reactor generating steam at a low and generally saturated temperature. A fossil-fuel fired steam generator having steam

generating tubes lining the furnace walls includes a flue which contains superheater surface. Steam generated by the nuclear reactor at low temperature flows through the



superheater surface located in the flue of the fossil-fuel fired steam generator to be superheated and then conveyed to a turbine.

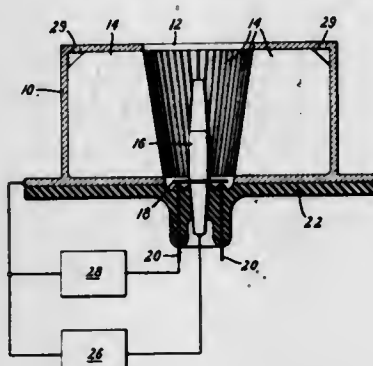
3,575,003

SEMISOLID PROPELLANT AND THRUSTOR THEREFOR
Aldo V. LaRocca, Villanova, Pa., assignor to General Electric Company

Filed Oct. 29, 1968, Ser. No. 771,570
Int. Cl. F02k 7/08

U.S. Cl. 60—203

7 Claims



A waxlike working substance for electrically powered thrust engines is produced by prolonged heating in vacuo of liquid or soft grease per fluorocarbon polymers. This product flows very readily under surface tension, through tapering passages, moving slowly in its waxlike condition, and more rapidly when heated and so more fluid. It ablates with no residue. These properties permit optimal operation of a thrustor in which fuel is fed radially inward between radially oriented planar electrodes to a central cylindrical or conical aperture.

3,575,004

SIPHON TUBE CONTROL DEVICE AND SYSTEM
Bernard J. Gachne, 320 E. Sixth St., and Harlan R. Carlson, 815 Meeker St., Fort Morgan, Colo.

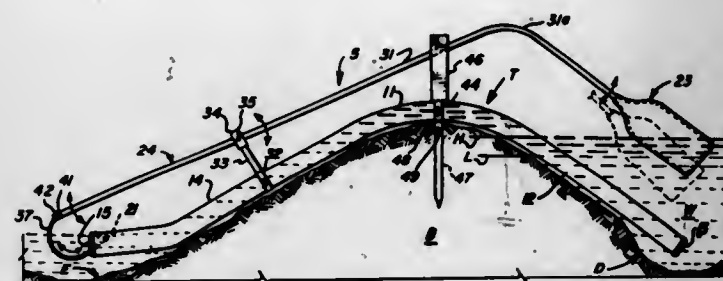
Filed Dec. 16, 1968, Ser. No. 784,033
Int. Cl. E02b 08/06

U.S. Cl. 61—18

16 Claims

A control device for a siphon tube regulates the liquid flow through the tube to provide self-priming for the tube and a level control for the liquid supply to the tube. The device includes a valve at the tube outlet and a valve actuating mechanism constructed and arranged to change the valve setting in response to a predetermined liquid level at the tube inlet for alternately stopping and starting the liquid flow

through the tube. When a lower liquid level at the tube inlet is reached, the valve is moved to stop the flow and trap a



column of liquid in the tube and the valve is moved to release the column to prime the tube at a higher liquid level at the tube inlet to start the flow through the tube.

3,575,005

METHOD AND APPARATUS FOR OFFSHORE OPERATIONS

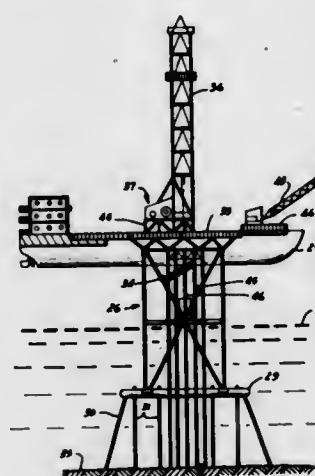
Maurice N. Sumner, #1 Chelsea Place, Houston, Tex.

Filed June 29, 1967, Ser. No. 649,889

Int. Cl. E02b 17/04; E02d 21/00; B63c 7/04

U.S. Cl. 61—46.5

25 Claims



In the erection of offshore structures, preferred method steps including releasably securing a vessel adapted for water navigation to a structure, said structure being adapted to be stabilized at selected locations of various depths wherein stabilization enables mineral-related, military, and transportation apparatus to function from said structure, altering the elevation of the vessel with respect to the structure whereby the vessel is made more free of wave action at the altered elevation and thereafter restoring the vessel to a navigable relationship to the body of water; said invention including apparatus for supporting a separable structure wherein the support immediately below the structure is designed principally with support of the structure in view and extends downwardly to a footing member, wherein support members below said footing member are founded in the soil beneath the body of water and are designed principally as foundation members.

3,575,006

UNDERGROUND CABLE-LAYING APPARATUS
Roger R. Rugroden, Circle Pines, and David H. Peterson, Elk River, Minn., assignors to Tel-elect, Inc., Minneapolis, Minn.

Filed Sept. 20, 1968, Ser. No. 761,119

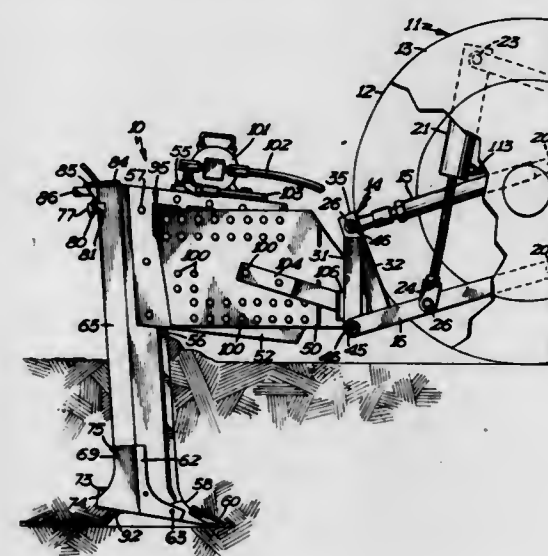
Int. Cl. A01b 3/64, 11/00; F16l 1/00

U.S. Cl. 61—72.6

26 Claims

The structure disclosed is directed to a vertical support mechanism which is generally driven and controlled through a three-point hitch of a prime mover, the mechanism being secured to a first pair of vertical plates that are pivotally secured to the vertical support mechanism at the front portions of the plates, the vertical plates being secured to a

second pair of inwardly spaced plates through a plurality of elastomeric mounting and draft members and the inner vertical plates securing a blade member thereto at its upper end, the blade member being drawn through the earth at a depth sufficient to lay a cable therein after passing through a cable guide secured to the trailing edge of the blade member,



the cable entering the guide from above the earth. A vibrator is secured to the blade member to substantially vibrate the blade member only, the remaining structure being isolated from the vibration through the elastomeric mountings which also serve as the draft coupling means coupling the mounting support to the blade member.

3,575,007

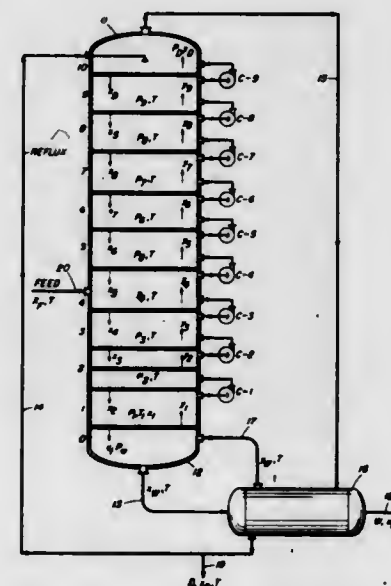
ISOTHERMAL FRACTIONAL DISTILLATION OF MATERIALS OF DIFFERING VOLATILITIES
Arnold Gunther, West Orange, N.J., assignor to Treadwell Corporation, New York, N.Y.

Filed Mar. 26, 1968, Ser. No. 716,188

Int. Cl. B01d 3/00; F25j 3/02

U.S. Cl. 62—26

5 Claims



Fractional distillation, i.e., separation of materials of differing volatilities, is effected under substantially isothermal conditions as opposed to isobaric conditions in the ordinary fractional distillation column. Instead of maintaining substantially the same pressure in a column and varying the temperature in the different stages, as in the customary isobaric fractional distillation, the temperature is maintained substantially or relatively constant and vapors from the different stages are compressed and introduced into the next stage. In other words, there is relatively little change in temperature but a change in pressure from stage to stage. This results in more efficient distillation with much smaller increase in entropy in the system.

STEAM STARTUP STABILIZER FOR AN ABSORPTION REFRIGERATION MACHINE

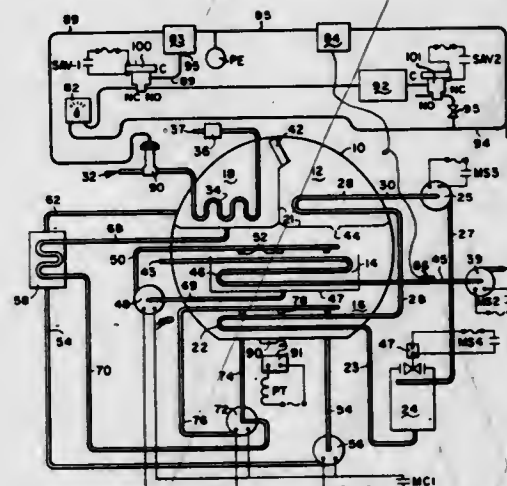
John W. Lorenz, La Crosse, Wis., assignor to The Trane Company, La Crosse, Wis.

Filed June 16, 1969, Ser. No. 833,357

Int. Cl. F25b 15/06

U.S. Cl. 62—103

13 Claims



A control for cold starting absorption refrigeration machines first preheats the absorption solution and the machine mass, then switches over to conventional demand and normal control. The preoperational preheat cycle utilizes a preselected, usually constant, rate of heat input into the generator of the machine. The preoperational cycle is completed when the absorption solution in the absorber reaches a preselected temperature.

3,575,009

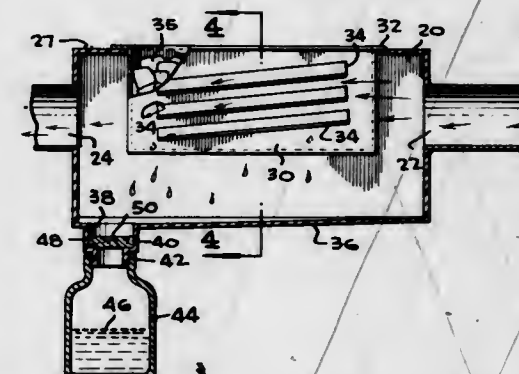
RAPID-ACTING WATER VAPOR CONDENSER
Nicholas Koonce, 6334 W. Rowland Ave., Littleton, Colo.

Filed June 6, 1969, Ser. No. 831,062

Int. Cl. F25d 21/00

U.S. Cl. 62—272

3 Claims



A water vapor condenser for use with a home laundry clothes dryer including means providing a hollow primary chamber receiving the exhaust flow from the dryer and having a thin-walled chilling unit insertable in the chamber for condensing water vapor with the chill unit including a hollow interior for retaining a quantity of ice or other cooling medium and with a filter being provided in a drain from the primary chamber for filtering lint or other particles from the condensed water vapor as it is drained into a receptacle attachable to the drain.

3,575,010

ROTATING DIRECT CONTACT LIQUID REFRIGERANT FREEZER

Charles Parker Honeyman, 2564 Chittenden Road, San Juan Bautista, Calif.

Filed Mar. 13, 1969, Ser. No. 806,916

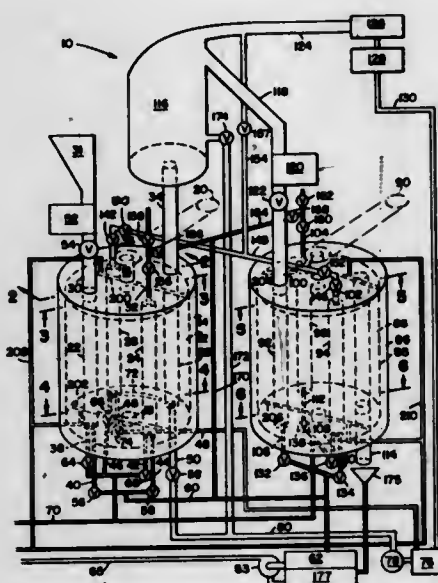
Int. Cl. F25d 3/10, 25/04

U.S. Cl. 62—375

10 Claims

Disclosed herein is apparatus for freezing food by bringing it into direct contact with a liquid or vaporous refrigerant

The apparatus includes rotor means having apertures therethrough, a quantity of food or other product being deposited into an aperture and then being carried with the rotor means as it rotates. Through such rotation, the food is brought into direct contact with the liquid refrigerant.



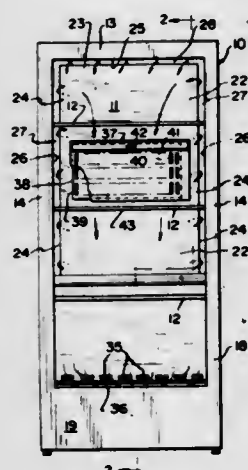
Meanwhile, the rotor means and other means associated therewith ensure that virtually no air enters the system, and virtually no liquid refrigerant, or vapor thereof, is lost from the system. The system is quite flexible and can be adapted to perform a variety of processes.

3,575,011 FORCED AIR FREEZER

Charles R. Dill, and Sylvester A. Winterheller, Evansville, Ind., assignors to Whirlpool Corporation
Filed Feb. 18, 1969, Ser. No. 800,081
Int. Cl. F25d 17/04

U.S. Cl. 62-408

9 Claims



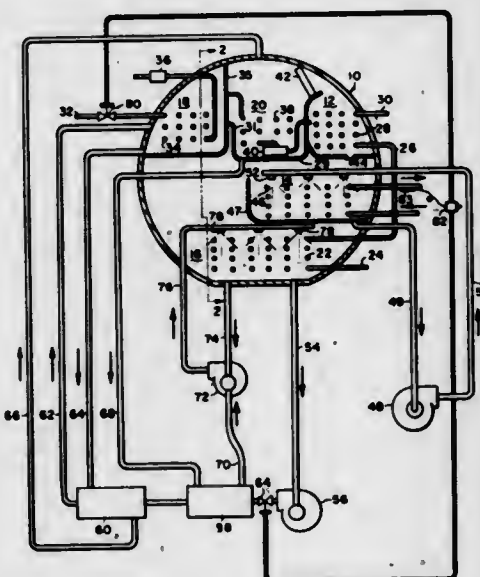
A refrigeration apparatus that has substantially uniform temperature throughout a storage enclosure in the apparatus comprising boundary walls defining the enclosure, an air duct substantially coextensive with a major portion of one of the walls and having edges adjacent others of the walls that are adjacent the one wall, peripheral discharge means at the air duct edges for directing air from the duct along the adjacent wall and toward a second wall that is directly opposite the one wall for flow of the discharge air along this second wall also, an air inlet adjacent one end of the duct for receiving air from the enclosure including the air that flows into the enclosure from along the second wall, means for forcing air through the air duct and means for refrigerating the duct air.

3,575,012 ABSORPTION REFRIGERATION SYSTEM HAVING TWO STAGE GENERATOR

David G. Peckham, La Crosse, Wis., assignor to The Trane Company, La Crosse, Wis.
Filed Nov. 6, 1968, Ser. No. 773,844
Int. Cl. F25b 15/06

U.S. Cl. 62-476

7 Claims



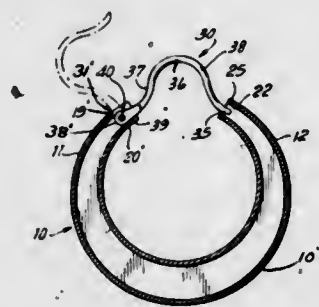
An absorption refrigeration system having a two stage generator, wherein the major components are contained in a single shell and wherein the refrigerant is released from the absorbent solution in two generating steps and steam substantially above atmospheric pressure is supplied to the first stage generator and the condensate therefrom is put in heat exchange with the absorbent in the second stage generator.

3,575,013 EARRING WITH PIVOTED RETAINER AND MEANS FOR STOPPING SAME

Michael Chernow, New York, and Joseph Chernow, New Rochelle, N.Y., assignors to said Michael Chernow assignor to Monocraft, Inc., Minneapolis, Minn.
Filed Aug. 20, 1965, Ser. No. 481,377
Int. Cl. A44c 7/00

U.S. Cl. 63-12

1 Claim



An earring for use with pierced ears and having a pivoted resilient retainer with an associated latching recess and means to guide the free end of the retainer thereinto, so as to insure the positive securement of the earring with respect to the ear. An abutment wall is provided to stop pivotal movement of the retainer as it moves to latched position.

3,575,014 TORSIONALLY AND AXIALLY FLEXIBLE COUPLING

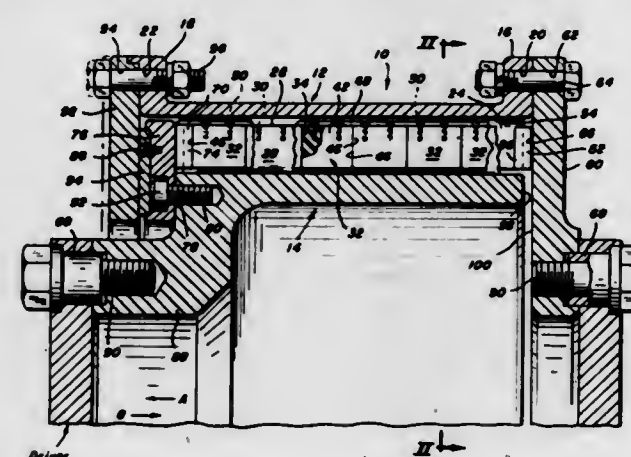
John Wright, Catonsville, Md., assignor to Koppers Company, Inc.
Filed July 7, 1969, Ser. No. 839,152
Int. Cl. F16d 3/64

U.S. Cl. 64-14

10 Claims

The flexible coupling includes an elongated sleeve with a plurality of radially extending elongated blades and a

cylindrical elongated hub with a plurality of radially outwardly extending blades. The sleeve is coaxially positioned on the hub member with the sleeve inwardly extending blades alternately interleaved between the outwardly extending blades of the hub member. Elongate flexible members having metal plates bonded to their sidewalls are positioned between the interleaved blade members. Sleeve channel members are positioned around the axial ends of the sleeve blade members at one end of the hub in abutting relation with the adjacent ends of the metal plates secured to the flexible members. An annular plate member is secured to a flanged end portion of the sleeve to maintain the elastic members axially between the blades. Hub channel members are positioned around the axial ends of the hub blade members at the opposite end of the hub and also in abutting relation with the adjacent ends of the metal plates secured to the flexible members. With the above arrangement the sleeve

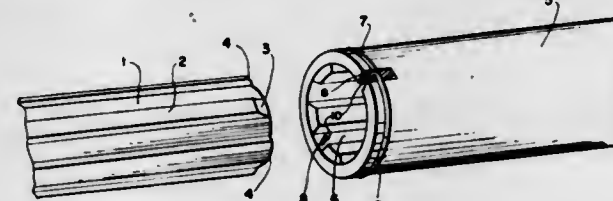


channel members and hub channel members about opposite sides of the flexible members at opposite ends thereof. A retaining ring is secured to the hub in abutting relation with the hub channel members and an end ring is secured to an opposite flanged portion of the sleeve member in abutting relation with a thrust ring which is secured to the retaining ring. The dimensions of the sleeve member, the hub member, the channel members and the flexible members with the metal plates secured thereto are such that an axial force exerted on the end ring preloads the flexible members axially. Substantial axial thrust can be imposed on the preloaded coupling without axial movement between the components of the coupling. Above a given predetermined axial thrust, axial movement between the components takes place. Torsional preloading of the flexible members is accomplished by wedging them into the spaces between the interleaved blades which are circumferentially smaller than the width of the flexible members in their free state.

3,575,015
SPLINED SHAFT CONNECTION
Hubert Geisthoff, Donrath, and Hans-Heinrich Welschhof, Geber, Germany, assignors to Firma Jean Walterscheid K.G., Sieburg, Germany
Filed June 18, 1969, Ser. No. 834,305
Claims priority, application Germany, June 21, 1968, P 17 50 948.7
Int. Cl. F16d 3/06

U.S. Cl. 64-23

3 Claims



A shaft has external splines on an end thereof which interfit with internal splines formed in a socket in the end of

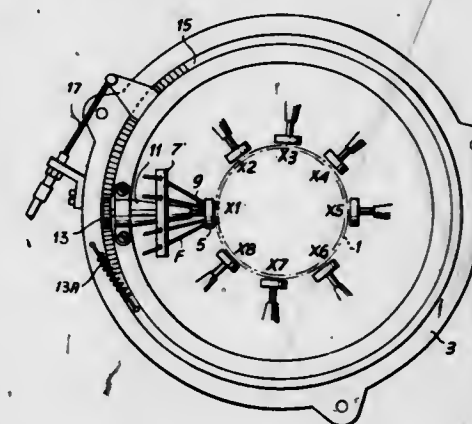
a second shaft. At least one land of the external splines has a beveled end with the other land ends being square. A spring-loaded pin projects through a radial bore between lands of the internal splines. The pin functions as a spring detent and assures the correct angular relationship in assembling the splined shafts.

3,575,016 SELECTIVE YARN CHANGING DEVICE FOR CIRCULAR KNITTING MACHINES

Gianni Conti, Firenze, Italy, assignor to G. Billi & C. S. P. A., Florence, Italy
Filed Apr. 29, 1969, Ser. No. 820,158
Claims priority, application Italy, May 3, 1968, 4548/68
Int. Cl. D04b 15/08, 15/58

U.S. Cl. 66-111

6 Claims



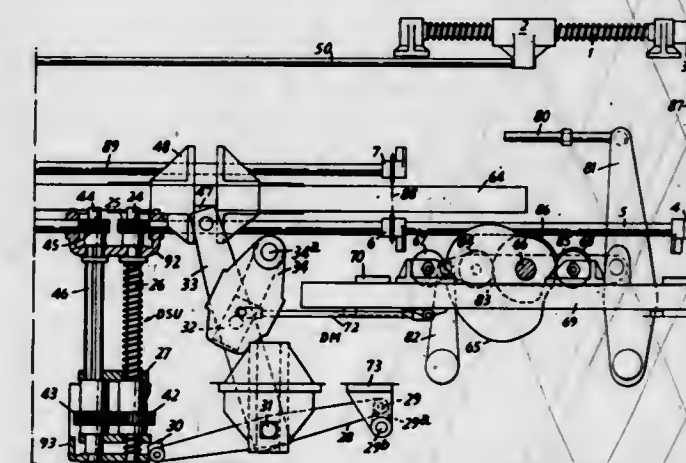
A yarn changer, especially for use at each feed of a multifeed circular ladies hosiery machine, having a yarn-feeding disc with a plurality of circularly spaced yarn-feeding holes therein with the disc being angularly oscillatable to selectively feed each of a like plurality of yarns to the needles. In each yarn changer the disc is mounted at one end of a rotatable rod upon the other end of which is mounted a spur gear and a ring gear is provided on the machine in mesh with the spur gears of the yarn changers at each of the feeds to commonly turn all the discs to commonly change the yarns being fed at all of the feeds of the machine.

3,575,017 DRAW MECHANISM FOR STRAIGHT BAR-KNITTING MACHINES

Barry F. Swanwick, Melton Mowbray; Ernest West, Kirkby in Ashfield; Leslie Collins, Cropwell Butler, and Ernest Chambers, Stapleford, England, assignors to S. A. Monk Limited, Sutton-in-Ashfield, Nottinghamshire, England
Filed Mar. 17, 1969, Ser. No. 807,658
Claims priority, application Great Britain, Mar. 22, 1968, 13911/68
Int. Cl. D04b 15/52

U.S. Cl. 66-126

12 Claims



A straight-bar knitting machine including an asymmetric center differential unit incorporated into the gearing system

conveying from a variable linear draw mechanism normal reciprocatory movements to the carrier drive and the slur drive rack. This unit is operable from the selvage screws so to adjust the carrier and slur drives that traverses thereof are asymmetric with respect to centerlines of the knitting heads, and the central points of these traverses are maintained coincident with centers of knitting widths. A draw shortening differential unit, associated with the draw mechanism and also operable from the selvage screws, minimizes the constant overtravel of the slur cams beyond the yarn carriers.

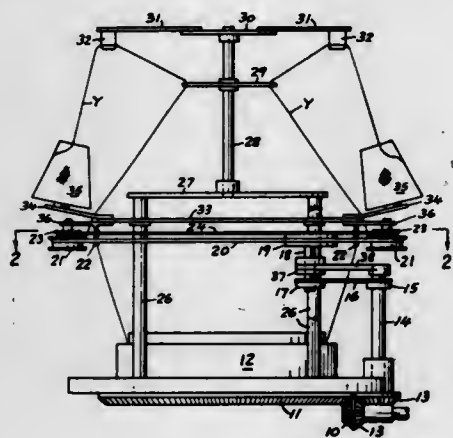
3,575,018

YARN-FEEDING MEANS FOR KNITTING MACHINES
Nathan Levin, 722 Edgewood Ave., Trenton, N.J., and
Thomas Anderson Oliver, Jr., 319 Summit Ave.,
Jenkintown, Pa. 19046

Filed Feb. 25, 1969, Ser. No. 802,181
Int. Cl. D04b 15/48

U.S. Cl. 66—132

5 Claims



A yarn-feeding system for drawing off yarn from a plurality of cones thereof and for feeding the same to a multifeed knitting machine wherein a plurality of rotating yarn-feeding rollers each have a pulley atop thereof and wherein an endless garter spring drive band encircles each of the pulleys. In one form of the invention an endless tape is driven by the machine to drive the rollers, the pulleys and the endless spring drive band while in a second form the endless spring drive band is driven by the machine to drive the pulleys and the rollers. The yarns are encircled about the rollers a plural number of times in spaced relation by wrapping the yarns about the rollers and between the successive spread-apart coils of a spring, the yarns thereafter being fed from the end of the spring.

3,575,019

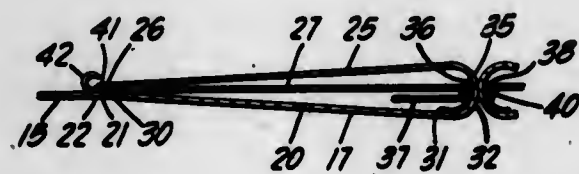
SEAMLESS STOCKING AND METHOD OF MAKING SAME

Richard M. Janda, Reading, Pa., assignor to North American Rockwell Corporation, Pittsburgh, Pa.
Continuation-in-part of application Ser. No. 779,733, Nov. 29, 1968. This application Feb. 10, 1969, Ser. No. 797,975

Int. Cl. D04b 9/56

U.S. Cl. 66—187

7 Claims



Tubular or seamless stocking having a double-ply welt, a leg portion and a foot portion with a multi-ply toe portion and to a method of knitting such stocking and closing the toe portion thereof on a circular knitting machine. The multi-ply toe portion includes first and second plies connected to the foot and a third ply enclosed within the first and second plies,

the third ply having a draw yarn interlaced in courses adjacent the free end thereof which acts when partially withdrawn from the courses to gather the free end of the third ply into a tight bunch to close outer connected ends of the first and second plies.

3,575,020

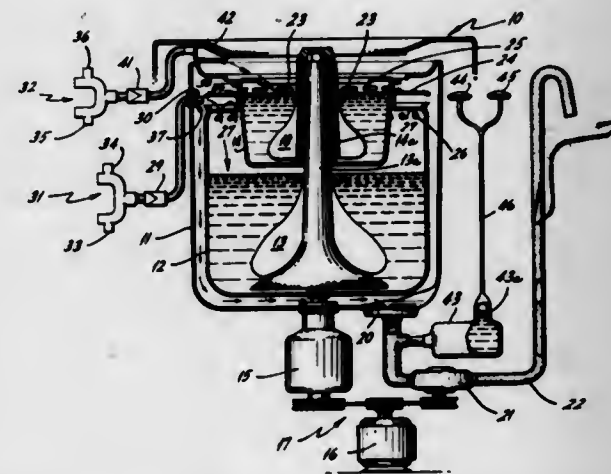
LAUNDRY APPARATUS

James R. Hubbard, Moorestown, N.J., assignor to Philco-Ford Corporation, Philadelphia, Pa.

Filed Jan. 14, 1969, Ser. No. 791,074
Int. Cl. D06f 23/04, 33/02

U.S. Cl. 68—4

10 Claims



A dual zone washing machine of the vertical axis type including a generally cylindrical open-top stationary tub and a generally cylindrical open-top rotatable tub within the stationary tub. A removable tub of lesser size than the rotatable tub is supported in the latter tub upon its rim, and a vertically extending oscillatable agitator includes vane sections for both the rotatable and the removable tubs. Selectively controlled fluid handling means are operable to fill either the removable tub or the rotatable tub alone, or to fill both sequentially.

3,575,021

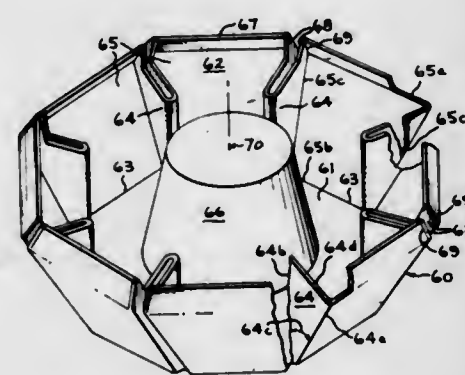
DISPENSING CUP HAVING SIDES WHICH UNFOLD UNDER CENTRIFUGAL FORCE

John Bochan, Louisville, Ky., assignor to General Electric Company

Filed Nov. 21, 1968, Ser. No. 777,771
Int. Cl. D06f 29/00

U.S. Cl. 68—17

6 Claims



An automatic clothes washer having a dispensing means including a bottom wall and an upwardly extending peripheral sidewall defining a generally cup-shaped member adapted to receive and dispense material. The sidewall is formed integrally with the bottom wall, the line of juncture therebetween comprising a flexible hinge. By this arrangement, the sidewall will fold downwardly under the action of centrifugal force as the cup-shaped member is rotated to dispense the material radially outwardly.

3,575,022

ROTARY DRIVE ASSEMBLIES

Jonathan Peter Steele, London, England, assignor to The Hoover Company, North Canton, Ohio

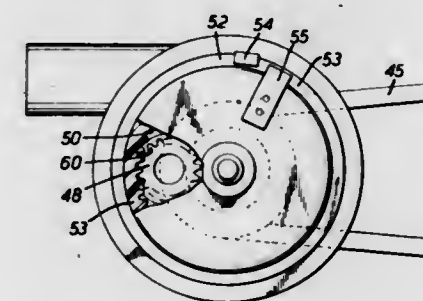
Filed Apr. 23, 1969, Ser. No. 818,534

Claims priority, application Great Britain, Apr. 29, 1968,
20,226/68

Int. Cl. D06f 29/00

U.S. Cl. 68—24

8 Claims



A tumbler-type washing machine has a horizontal axis rotary drum capable of periodically reversed rotation at slow speed for washing, or rotation at high speed in one direction for centrifugal extraction. The drum is driven by a belt drive extending directly from the shaft of an electric motor which during washing can be periodically reversed. An extraction pump for emptying the drum is also driven by the motor via a drive assembly. The drive assembly for the pump has an input rotary member connected directly to the motor and an output rotary member connected directly to the pump. The input and output rotary members form part of a train of rotary members two of which are capable of rotary movement with respect to one another through a lost motion arc during the periodical reversal of the motor. In this way the pump is not driven during the washing operation. When, however, cooperating shoulders on the said two of the rotary members of the train engage one another, after the members have been driven relatively to one another in either direction through an arc which is as great as the lost motion arc, the input member will drive the output member so as to drive the pump.

3,575,023

STEERING LOCKING DEVICE FOR MOTOR VEHICLES

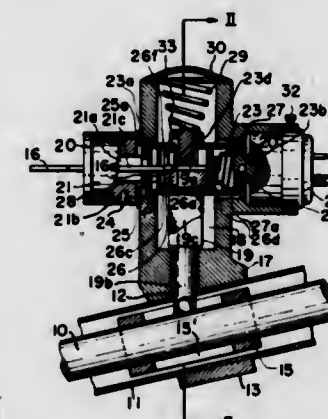
Yasushi Shimizu, Ohmiya, Japan, assignor to Nissan Motor Company, Limited, Yokohama City, Japan and Kanto Selki Company, Limited, Ohmiya City, Japan

Filed Oct. 22, 1969, Ser. No. 868,543

Claims priority, application Japan, Oct. 24, 1968, 43/77516
Int. Cl. B60r 25/02

U.S. Cl. 70—252

5 Claims



A steering locking device for locking the steering shaft of a motor vehicle having a lock cylinder rotatable by a key and locking means. The locking device comprising a control member rotatable with the lock cylinder and operatively connected with an ignition switch, and a rotary member cooperating with the control member to hold the locking means in the unlocked position irrespective of the position of the key and upon removal of the key locks the steering shaft.

3,575,024

KEY ENTRAPMENT LOCK DEVICE

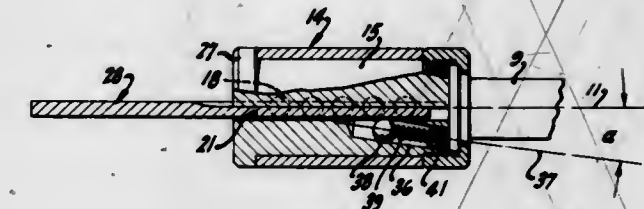
Ernest L. Schlage, Burlingame, Calif., assignor to Schlage Lock Company

Filed Apr. 14, 1969, Ser. No. 815,832

Int. Cl. E05b 11/06

U.S. Cl. 70—389

10 Claims



A key entrapment lock device includes a cylinder plug having a keyway intersected by a passage making a wedging angle therewith. A ball in the passage is spring pressed to engage and wedge a key in the keyway when the key is moved in a withdrawing direction.

3,575,025

MATERIAL FORMING APPARATUS UTILIZING HYDRAULIC PRESSURE

Hiroshi Tominaga, Tokohama-shi, and Masanobu Takamatsu, Yokohama-shi, Japan, assignors to Tokyu Sharyo Seizo Kabushiki Kaisha, Yokohama-shi, Kanagawa-Ken, Japan

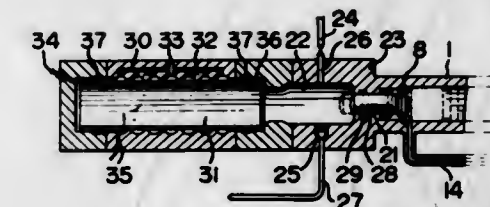
Filed Oct. 20, 1965, Ser. No. 498,981

Claims priority, application Japan, Dec. 7, 1964, Jan. 14, 1965, 39/68518; 40/1591; 40/11601

Int. Cl. B21d 26/04

U.S. Cl. 72—62

1 Claim



A pressure forming device comprises a liquid pressure chamber which communicates with a mold-forming member having a mold cavity into which an article to be formed is inserted. A plunger is mounted for sliding sealing movement in respect to a wall bounding or communicating with the pressure chamber so that it may be moved rapidly in an impulsive movement to displace liquid of the chamber against the member to be molded in the mold cavity to form it to the configuration of the cavity. Means are provided for regulating the movement of a hammer to strike the plunger member to move it in an impulsive movement, and various means are shown for the construction of a mold cavity member and for the means in holding the member to be molded to permit its selected deformation.

3,575,026

ROLLING HEAD FOR ROTO-FORM MACHINE

Constantin Troyanski, Cicero, Ill., assignor to Pines Engineering Co., Inc., Aurora, Ill.

Filed Jan. 24, 1968, Ser. No. 700,071

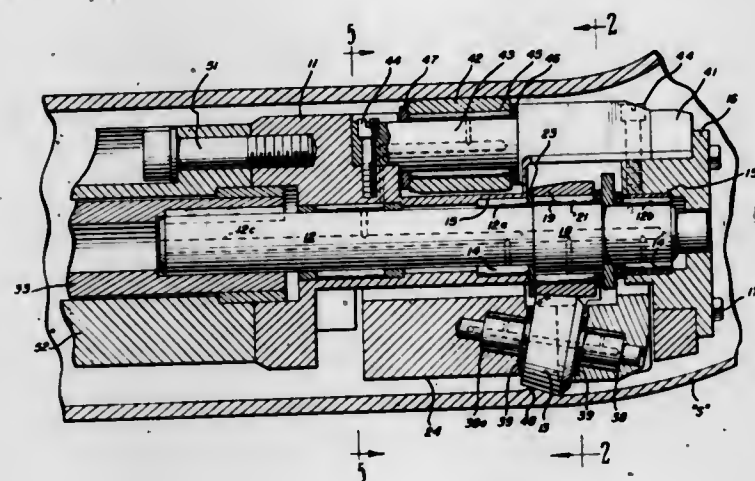
Int. Cl. B21d 1/08

U.S. Cl. 72—113

8 Claims

Apparatus for cold bending metal tubes involving application of pressure on a pressure roller generated by an oscillating eccentric operating directly on the pressure roller. This invention relates to improvements in machines for cold bending of metallic tubes of relatively large diameter by applying rolling pressure to the inside wall surface of the tube over a specific area located on the portion of the tube in

which the other arc of curvature is generated so as to thin said wall portion by rolling pressure without appreciable alteration in the thickness of the opposite portion of the tube wall.



alteration in the thickness of the opposite portion of the tube wall.

3,575,027

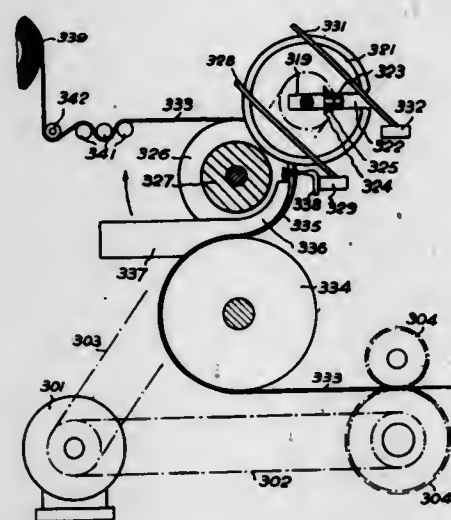
MANUFACTURE OF PATTERNED WEBS

Paul Eisler, 57 Exeter Road, London, England
Continuation-in-part of application Ser. No. 510,278, Nov. 29, 1965, now Patent No. 3,408,735, which is a continuation-in-part of application Ser. No. 165,736, Jan. 12, 1962, now Patent No. 3,283,284. This application Sept. 4, 1968, Ser. No. 757,353

Int. Cl. B21d 31/02, 47/04

U.S. Cl. 72-186

31 Claims



To produce lines of longitudinal slits the length of which can be varied in a regular pattern in a travelling web, suitably of metallic foil for the production of electric resistance heating films, a gapped knife for each limb which may be a rotating knife is given a cycle of movements, the gap remaining clear of the web at intervals to leave bridges between the slits and the longitudinal component of movement of the knife being variable to vary the length of the slits. The foil is supported on a grooved support and the knife may also fold the margins of the slit through 90°, these margins then being folded or crushed right over. The foil may be crimped and be insulated.

3,575,028

ROLLING MILLS

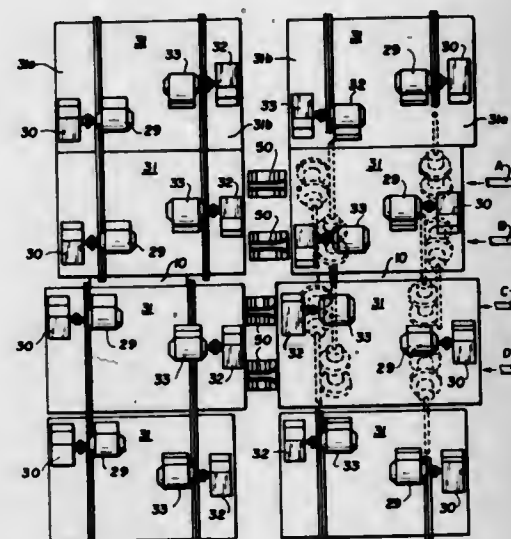
Werner W. Eibe, McCandless Township, Allegheny County, Pa., assignor to Blaw-Knox Company, Pittsburgh, Pa.
Filed Jan. 28, 1969, Ser. No. 794,598
Int. Cl. B21b 41/00, 27/06, 31/32

U.S. Cl. 72-227

9 Claims

A multiple strand, multiple stand rolling mill for continuous cast billets and the like including a support

housing arranged to receive four mill housings spaced equally apart in parallel positions to provide four parallel double roll



stands. Two or more of the support housings are spaced apart to make up a tandem mill arrangement for four parallel pass lines.

3,575,029

DEVICE FOR DRAW-FORMING METAL RODS

Hans Weber, Duisburg, and Joachim Mietzner, Angermund, Germany, assignors to Demag Aktiengesellschaft, Duisburg, Germany

Filed Dec. 16, 1968, Ser. No. 783,998

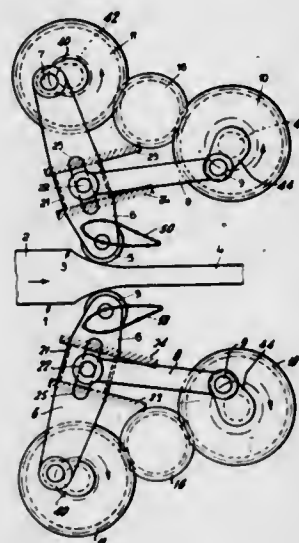
Claims priority, application Germany, Dec. 29, 1967,

P 16 02 062.5

Int. Cl. B21b 1/42

U.S. Cl. 72-240

7 Claims



A device for drawing a metal rod, particularly, a cast steel rod comprises one or more deforming rollers which are arranged to engage the rod on opposite sides thereof as it is moved thereby. The rollers are moved by a mechanism to provide for the desired drawing down from a wide diameter down to a relatively small diameter. The mechanism includes a pivotal support member which carries a deforming roll and which is moved by a first rotating crank into pressure force engagement with the rod being cast as the rod is moved thereby. The mechanism also includes an additional second crank mechanism for engagement with the support for shifting the support in a substantially longitudinal direction in respect to the rod being formed. In a first embodiment the second crank for controlling the longitudinal direction of movement of the support engages the support by means of a pushrod having a pin which is guided in a slot defined in the direction of the longitudinal axis of the support member and which is also guided by a sliding block. In another embodiment the engagement of the second crank with the

support is a direct engagement. The drive for the crank includes a gear which drives through an idler gear to the crank for moving the support member in a direction toward and away from the rod being cast. An alternate embodiment includes a direct gear drive from the first crank to a gear carrying the shaft for the second crank.

3,575,030

SLANTED WELD EXTRUSION PROCESS

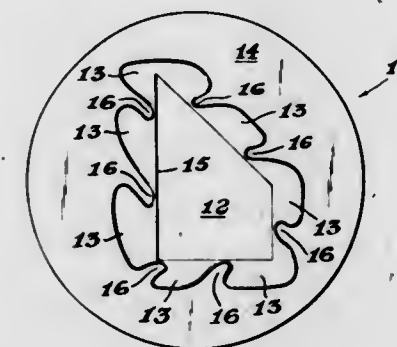
Karl F. Braeuninger, Ferguson, Mo., assignor to The Dow Chemical Company, Midland, Mich.

Filed Nov. 1, 1967, Ser. No. 679,836

Int. Cl. B21c 25/04

U.S. Cl. 72-269

3 Claims



In forming a hollow metal shape from a billet using a porthole extrusion die, the metal of the billet flowing through the portholes is directed around bridges and the resulting streams are brought together and rejoined along a plane that extends transversely to the wall of the resulting shape at an angle of about 10° to 70° from a line extending normal to the face of the shape adjacent the resulting weld zone, thereby providing an extruded hollow shape that exhibits improved elongation and strength properties in and about the weld zone, such properties being substantially the properties of the metal apart from the weld zone. The described article is made using a porthole die in which the bridges separating the feederholes of the feederhole plate are disposed at the said angle of 10° to 70° from a plane extending normal to the face of the shape, formed in such a die, adjacent the weld zone.

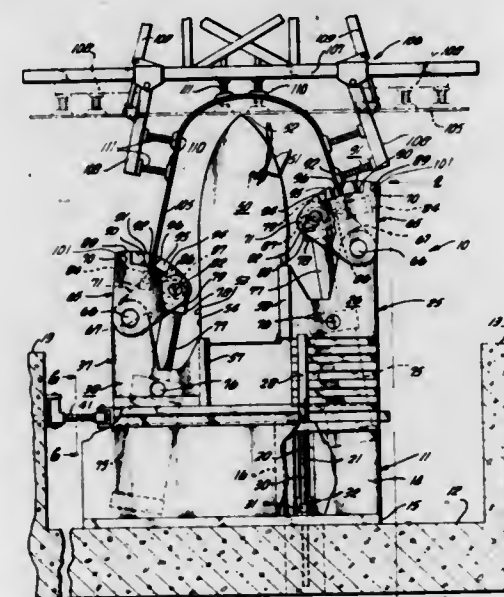
3,575,031

STRETCH-FORMING MACHINE WITH STRESS-ISOLATED BASE

Landon R. Gray, Portuguese Bend, Calif., assignor to Sheridan-Gray, Inc., Huntington Park, Calif.
Filed July 25, 1968, Ser. No. 747,598
Int. Cl. B21d 11/02

U.S. Cl. 72-302

16 Claims



A machine for stretch forming of sheet-metal parts, such as leading-edge surfaces for an aircraft wing, over an upright

forming die. Gripping jaws are pivotally supported by frames on opposite sides of the die to rotate about pivot axes substantially parallel to side surfaces of the die. The jaws and frames are adjustable in position with respect to each other to accommodate dies which are tapered or have unequal side surfaces. Hydraulic cylinders drive the jaws from a loading position where a metal sheet is guided into the jaws, into a stretch-forming position where the jaws are tangent to the die surfaces and the sheet extends from the die through a right-angle bend into the jaws. A single cylinder is used on each jaw to accomplish initial positioning as well as to apply stretch-forming force. The die is supported on the upright jaw-supporting frames, and reaction forces arising during stretch forming are isolated from a base which carries the frames.

3,575,032

TUBE BENDING TOOL

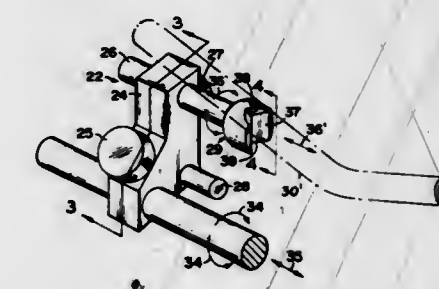
Emery J. Zahuranec, Solon; Zoltan Szohatzky, Mentor, and Harry G. Dodge, Painesville, Ohio, assignors to Crawford Fitting Company, Solon, Ohio

Filed Nov. 12, 1968, Ser. No. 775,022

Int. Cl. B21d 11/04

U.S. Cl. 72-311

9 Claims



A universally adjustable tube abutment for a hand operated tube bending tool to accommodate tubes in which bends are to be placed in various planes.

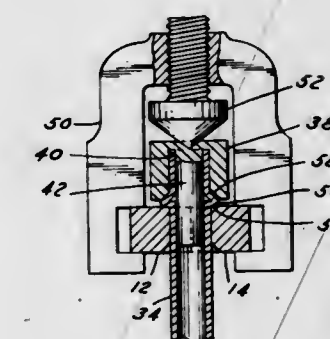
3,575,033

TUBING BEADER

Howard F. Meyer, Jr., Northville, Mich., assignor to Ford Motor Company, Dearborn, Mich.
Filed Mar. 14, 1969, Ser. No. 807,230
Int. Cl. B21d 41/02

U.S. Cl. 72-317

5 Claims



A die member contains an annular passage that surrounds the exterior of a tube end and a guide pin that extends into the passage in the tube beyond the location of a desired bead. The tube is clamped into a holder at the approximate location of the bead and a force is applied to the die member to move the member toward the holder. This movement deforms the tube wall outward between the die member and the holder, thus forming a bead on the tube at a point remote from the tube end.

3,575,034

METHOD OF FORMING

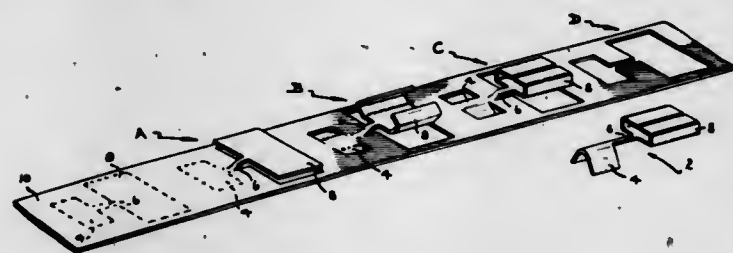
Linn Stephen Lightner, Camp Hill, Pa., assignor to AMP Incorporated, Harrisburg, Pa.

Filed Oct. 14, 1965, Ser. No. 495,892

Int. Cl. B21d 31/02; B21c 37/02; B21d 28/00

U.S. Cl. 72-339

3 Claims



This invention relates to a method of forming a sheet metal article such as an electrical contact wherein the direction of bending of the article is the same as the direction of shear, whereby the stress areas of said article are maintained at the inner portion of the bends in the article, thereby minimizing the chance of subsequent fracture.

3,575,035

APPARATUS FOR FORMING WHEEL RIMS

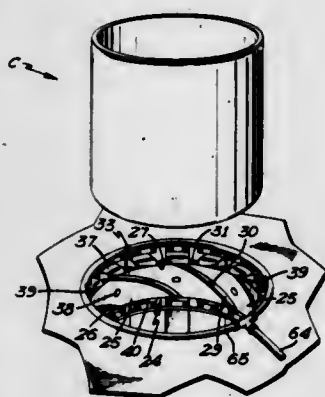
Earl T. Nokes, Armstrong, Iowa 50514

Filed July 11, 1968, Ser. No. 744,216

Int. Cl. B21d 22/00

U.S. Cl. 72-354

9 Claims



A process and apparatus for forming a drop center wheel rim wherein a substantially rectangular piece of metal is shaped into a cylindrical blank and the central portion thereof is engaged and progressively urged inwardly by pressure applying medium to form the drop center or well of the wheel rim. The partially formed wheel rim is then subjected to the action of first-stage male and female dies to further form the wheel rim and is then subjected to the action of male and female finishing dies to completely form the wheel rim. The process and apparatus permits wheel rims to be formed while minimizing, if not eliminating, any tendency of the cylindrical blank to thin at areas known to be subjected to stress. The process and apparatus also permits the formation of wheel rims with reduced requirements as to space and time.

3,575,036

CRIMPING TOOL AND DIE ASSEMBLY

Joseph Willard Hoffman, Liverpool, and Henry William Demler, Sr., Lebanon, Pa., assignors to AMP, Incorporated, Harrisburg, Pa.

Filed Sept. 13, 1967, Ser. No. 667,461

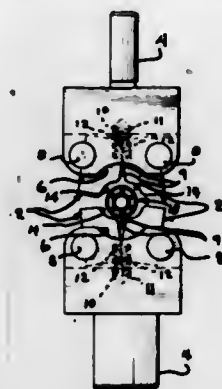
Int. Cl. B21d 41/00

U.S. Cl. 72-402

9 Claims

A die assembly comprises opposed carrier members in which pairs of die members are pivotally mounted so that the pairs of die members are disposed opposite each other. Spring means maintain the pairs of die members in positions so that the crimping areas thereof are directed away from each other in a nonoperating position and the crimping areas

are moved toward each other upon interengagement of the pairs of die members to define a crimping configuration to be



applied to a ferrule when positioned within the crimping areas.

3,575,037

DISTORTION REDUCING MEANS FOR JAW PORTION OF COMPRESSION TOOL

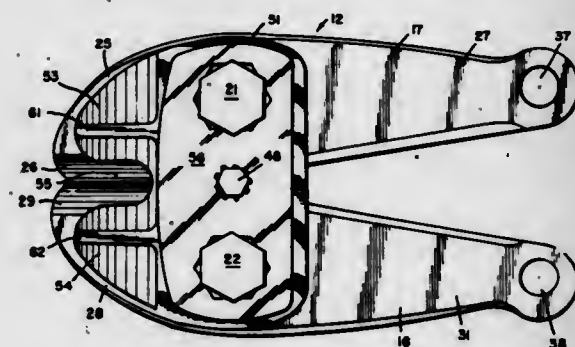
Thomas M. Porter, Concord, Mass., assignor to H. K. Porter, Inc., Somerville, Mass.

Filed Jan. 2, 1969, Ser. No. 788,583

Int. Cl. B21d 9/08

U.S. Cl. 72-409

3 Claims



The cross straps of a heavy-duty compression tool are provided with extended nose portions that bear against both sides of both jaw members for a substantial distance forward of the strap pivots. A parallel walled slot is provided between the extended nose portions to receive the work. The function of the extended nose strap is to reduce if not eliminate out of plane distortion of the jaw members thereby not only improving the ability of the tool to perform its function, but at the same time reducing the handle load and the strain imposed on the various portions of the tool.

3,575,038

SURGICAL INSTRUMENT

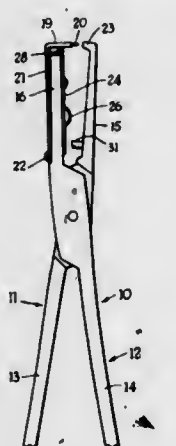
Herbert Ernest Mallett, 11, Hainault Road, Chigwell, England

Filed Oct. 17, 1968, Ser. No. 768,414

Int. Cl. B21d 9/08

U.S. Cl. 72-410

7 Claims



A pair of forceps for inserting a staple into the edges of an incision in a blood vessel, the forceps comprising two jaw

portions, a head at the tip of one jaw, a cage surrounding the head and adapted to receive and support a staple on the head, resilient means enabling the cage to move reciprocally relative to the head and an anvil at the tip of the other jaw portion adapted to depress the cage relative to the said one jaw portion, as the jaws are closed, and set the staple.

3,575,039

AUTOMATED TEST OF FUEL COMBUSTION QUALITY

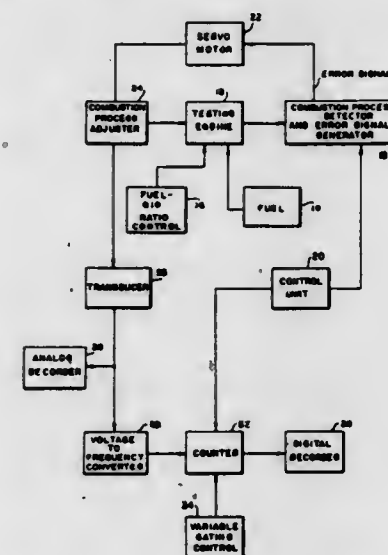
William E. Beal, Pitman, N.J., assignor to Mobil Oil Corporation

Continuation-in-part of application Ser. No. 295,733, Jan. 17, 1963, now abandoned, Continuation-in-part of application Ser. No. 160,051, Dec. 18, 1961, now Patent No. 3,238,765, Continuation of application Ser. No. 790,138, Jan. 9, 1969, now abandoned. This application July 31, 1969, Ser. No. 848,409

Int. Cl. G01n 33/22

U.S. Cl. 73-35

8 Claims



A system for determining a combustion quality of a fuel, e.g., octane or cetane value, wherein the detonation intensity or time lag of a test fuel powering a standard test engine is compared to a reference value to generate an error signal. The compression ratio of the engine is adjusted in response to a function of the error signal to maintain a predetermined condition of detonation intensity or time lag, and the amount of adjustment of the compression ratio provides a representation of the combustion quality of the fuel. The system may also include means for controlling a process of blending the test fuel to a predetermined specification in response to a signal which is a function of the amount of adjustment of the compression ratio.

3,575,040

APPARATUS FOR TESTING A PIPELINE FOR LEAKS

Hendrik Bosselaar, Amsterdam, Netherlands, assignor to Shell Oil Company, New York, N.Y.

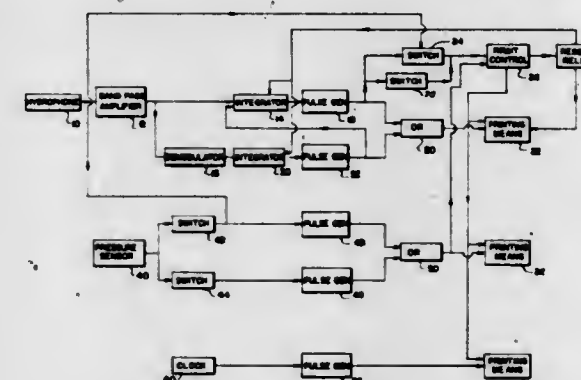
Filed Aug. 9, 1968, Ser. No. 752,108

Claims priority, application Great Britain, Nov. 2, 1967, 80316/67

Int. Cl. G01m 3/24

U.S. Cl. 73-40.5

2 Claims



Apparatus for testing pipelines for leaks. The apparatus is passed through a pipeline by the flow of fluid. A hydrophone

connected to the apparatus is in contact with the fluid and is sensitive to ultrasonic signals from the fluid arising from a leak. The ultrasonic signals appear on a recorder chart as a function of either the distance covered or a quantity related thereto. Pressure sensors are also attached to the apparatus, the signals of which can be for recording pressure indications as a function of either the distance covered or a quantity related thereto, and/or for actuating a switch device by which the recording equipment for ultrasonic signals can be partly or entirely switched off.

3,575,041

APPARATUS FOR TESTING CIGARETTES OR THE LIKE

Uwe Heltman, Lüneburg, Germany, assignor to Hauni-Werke Korber & Co. K. G., Hamburg, Germany

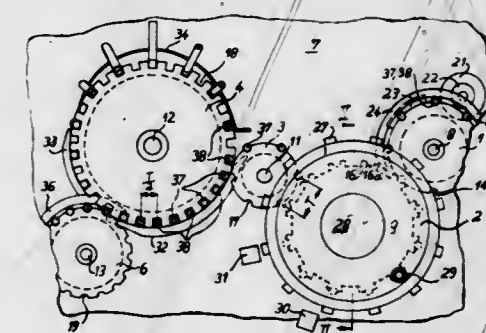
Filed Nov. 20, 1968, Ser. No. 777,326

Claims priority, application Germany, Dec. 7, 1967, P 16 32 216.0

Int. Cl. B07c 5/12

U.S. Cl. 73-45.1

20 Claims



Two rows of filter cigarettes which move sideways are tested simultaneously while traveling in the flutes of a testing drum past a testing station where both ends of each cigarette receive testing fluid from a stationary source. The drum is provided with an annular flange between the two rows of flutes and with two rows of nipples which engage the outer ends of cigarettes during travel past the testing station to urge the inner ends of such cigarettes against the flange. Testing fluid is admitted by way of the nipples and through passages provided in the flange, and the passages of the flange are connected with an electronic or pneumatic testing unit during travel past the testing station. The testing unit controls an ejector which expels defective cigarettes from their flutes downstream of the testing station. One row of cigarettes is thereupon inverted end for end so that the cigarettes of the one row are deposited between the cigarettes of the other row.

3,575,042

AUTOMATIC DIGITAL RECORDING WELD DEFECT DETECTOR

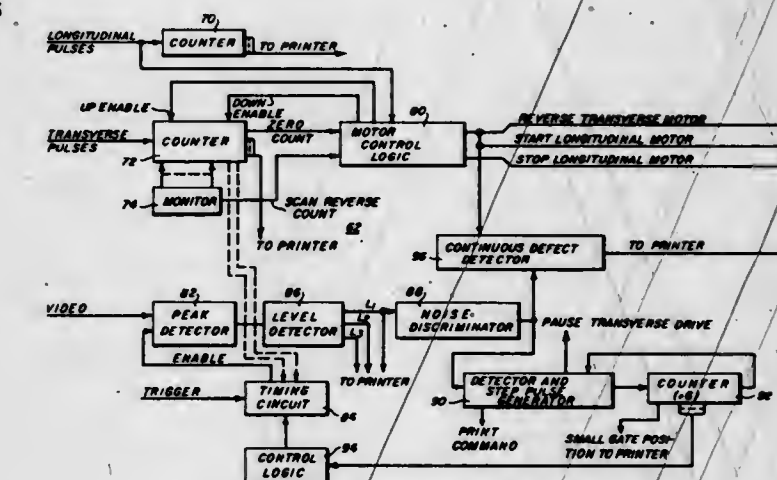
James F. Lovelace, and Dennis T. Cook, Niantic, Conn., assignors to General Dynamics Corporation, New York, N.Y.

Filed Aug. 28, 1968, Ser. No. 755,840

Int. Cl. G01n 24/04

U.S. Cl. 73-67.8

9 Claims



An automatic weld inspection system is described having an ultrasonic defect detector of the pulse reflection type. A

search unit is mounted in a mechanism which moves it in incremental steps in directions parallel and perpendicular to the weld. An electronic control system which is responsive to the detection of a defect signal stops the mechanism movement of the scanner and electronically scans the weld in a direction running depthwise through the weld. The electronic scanning system and the mechanical scanner provide digital readouts to a printer, so that the location of the defect and other characteristics thereof may be indicated.

3,575,043

ELONGATE ELEMENT ULTRASONIC INSPECTION SYSTEM

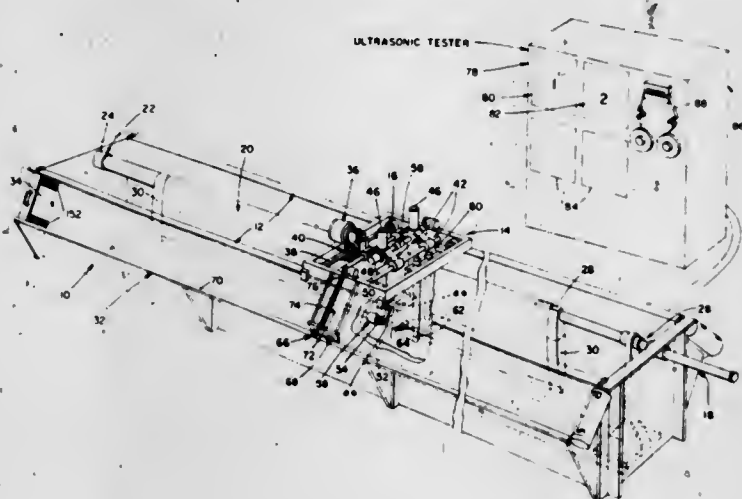
John W. Allen, Danbury, Conn., and Leon D. Furon, Woodland Hills, Calif., assignors to Air Products and Chemicals, Inc.

Continuation of application Ser. No. 561,435, June 29, 1966, now abandoned. This application Mar. 17, 1969, Ser. No. 808,012

Int. Cl. G01n 29/04

U.S. Cl. 73-67.8

15 Claims



Apparatus is described which includes ultrasonic search wheels or the like for ultrasonically scanning a vertical elongated element. The search wheels operate in unison across the workpiece in response to a follower which in turn is mounted to a carriage. The follower is constructed to ride on the top surface of the vertical element. The search wheels are pivotally mounted in such a manner that the ultrasonic energy radiated into the element is always normal to the surface of the element.

3,575,044

ULTRASONIC INSPECTION SYSTEM FOR WELDS

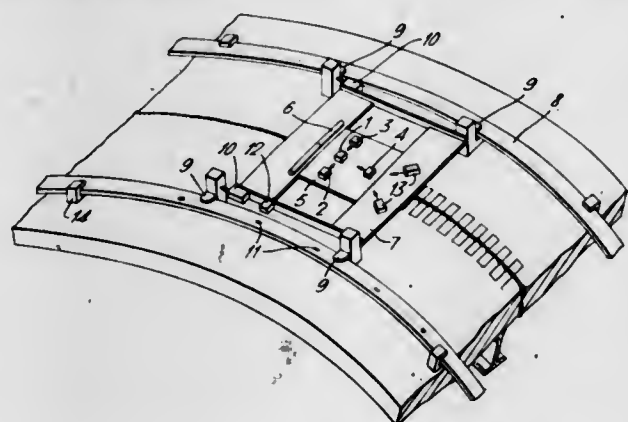
Harold Gibbs, and Walter Jeffrey Lethbridge, Bath, Somerset, England, assignors to National Research Development Corporation, London, England

Filed Dec. 11, 1967, Ser. No. 689,546

Int. Cl. G01n 29/00

U.S. Cl. 73-67.9

8 Claims



The present invention is concerned with an ultrasonic inspection system for welds and the like in which the weld is repeatedly scanned automatically by one or more acoustic

transducers each transducer being linked to selected channels of a multi channel high-speed recorder whereby a record showing the position of any flaws together with an indication of their size is produced.

3,575,045

A TESTING MACHINE FOR APPLYING STATIC AND DYNAMIC FORCES

Richard Northam Knights, Gloucester, England, assignor to Amster (Great Britain) Limited, Leamington Spa, England

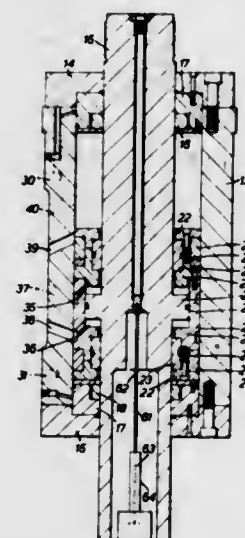
Filed July 22, 1968, Ser. No. 746,479

Claims priority, application Great Britain, Aug. 1, 1967, 35,186/67

Int. Cl. G01n 3/32, 3/10

U.S. Cl. 73-92

4 Claims



A dual-purpose static/dynamic testing machine comprising a base supporting an outer hydraulic double-ended ram cylinder containing a movable piston which is hollow and itself forms the cylinder for a second movable piston connected to a piston rod passing through the upper ends of both cylinders and having means for attachment to a specimen at its upper end. Valve means admit hydraulic pressure selectively to opposite ends of the outer cylinder to apply a static load, and further valve means apply oscillating hydraulic pressure to opposite ends of the inner cylinder for dynamic testing.

3,575,046

METHOD FOR TESTING A VEHICLE TRAILER HITCH

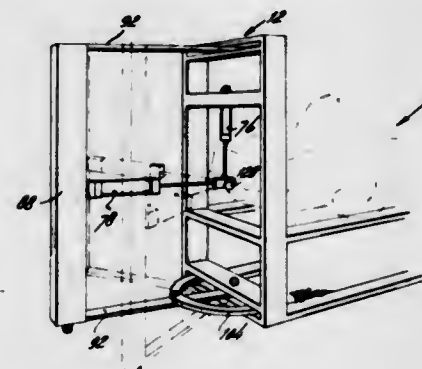
Henry S. Shattles, and James F. George, Phoenix, Ariz., assignors to Arcoa International, Inc., Phoenix, Ariz.

Filed June 2, 1969, Ser. No. 829,504

Int. Cl. G01n 3/08, 3/24, 3/28

U.S. Cl. 73-95

9 Claims



Method for testing the strength of a vehicle trailer hitch, including supporting the vehicle rear against vertical and longitudinal movement, while pulling vertically and longitudinally with respect to the hitch. The pulling longitudinally is radially varied, so as to measure the effects of trailer loads from variant sectors.

3,575,047

RADIAL TIRE FORCE DETERMINING APPARATUS

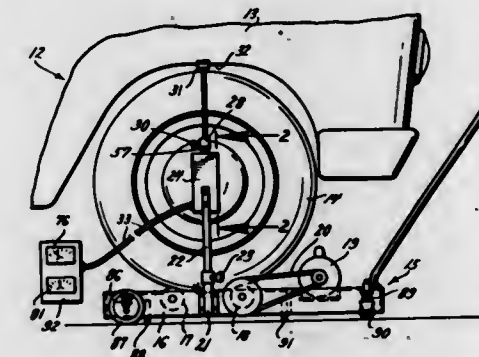
Lee Hunter, St. Louis Co., and David A. Senften, Florissant, Mo., assignors to Hunter Engineering Company, Bridgeton, Mo.

Filed Mar. 27, 1969, Ser. No. 811,161

Int. Cl. G01m 17/02

U.S. Cl. 73-146

10 Claims



A tire of a vehicle having a finder is supported on a pair of tire cradling rollers driven by a motor connected by a belt to one of the rollers. Two sensor units are connected to a vehicle motion follower responsive to the movement of the finder due to tire strength variations around the circumference of the tire to effect indications of vehicle movement and maximum range of vehicle movement.

3,575,048

CALORIMETER FOR HIGH POWER LASERS

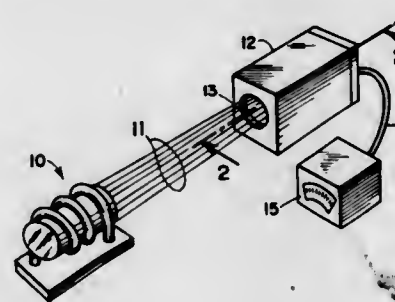
Leonard Charles De Benedictis, Los Angeles, Calif., assignor to Union Carbide Corporation

Filed July 10, 1968, Ser. No. 743,781

Int. Cl. G01k 17/00

U.S. Cl. 73-190

8 Claims



A calorimeter of the ballistic thermopile type particularly useful for measuring energy in high power pulsed laser beams utilizes a glass filter as the absorbing medium. Since the thermal conductivity of glass is ordinarily poor, a highly thermally conductive material such as a copper disc is bonded directly to the rear surface of the glass. By providing this copper backing to the glass, the absorbing medium comes to thermal equilibrium considerably faster than would be the case in the absence of any backing. The volume of the absorbing medium is relatively small in relation to the usable aperture and the sensitivity is accordingly greatly increased in addition to the feature of a shortened time to arrive at thermal equilibrium.

3,575,049

SONIC FLOW METER

Thomas J. Boland, Idaho Falls, Idaho, assignor to the United States of America as represented by the United States Atomic Energy Commission

Filed Jan. 8, 1970, Ser. No. 1,482

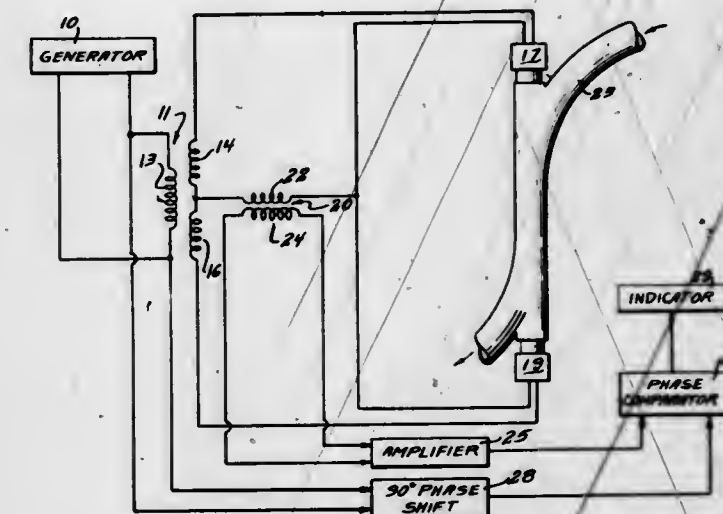
Int. Cl. G01p 5/00

U.S. Cl. 73-194

5 Claims

A device for measuring the velocity and direction of flow

of a fluid uses a pressure wave signal which is transmitted both upstream and downstream. The resulting signals are



mixed to form a single signal having a phase angle representative of the speed and direction of flow.

3,575,050

FLUID FLOWMETER

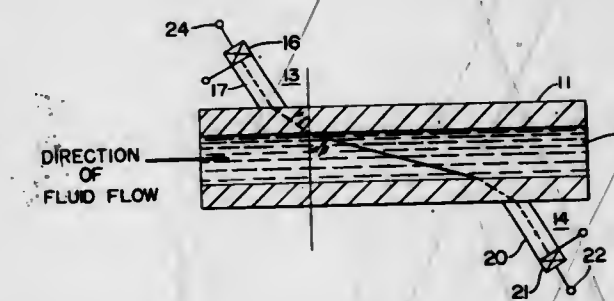
Lawrence C. Lynnworth, Waltham, Mass., assignor to Panametrics, Inc., Waltham, Mass.

Filed Dec. 4, 1968, Ser. No. 781,231

Int. Cl. G01f 1/00

U.S. Cl. 73-194

18 Claims



An ultrasonic flowmeter to measure fluid velocity within a pipe. The device employs, in one embodiment a pair of shear wave transducers positioned on the pipe to propagate shear waves into oblique incidence with the pipe wall-fluid interface. Longitudinal waves are thereby produced by mode conversion and propagated diagonally upstream and downstream in the fluid. The difference in transit time between upstream and downstream components indicates flow velocity. Alternatively, the Doppler shift of the longitudinal wave, after backscattering from a particle or eddy in motion is indicative of fluid velocity.

3,575,051

MAGNETIC FLOWMETER

Harry F. Moore, Hilltown, Pa., assignor to Emerson Electric Co., St. Louis County, Mo.

Filed May 29, 1968, Ser. No. 733,128

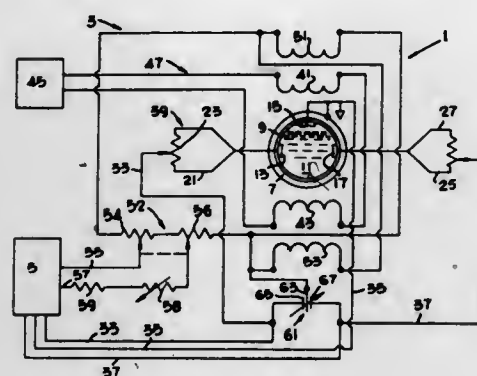
Int. Cl. G01p 5/08

U.S. Cl. 73-194EM

10 Claims

A magnetic flow meter primary unit including a conduit for fluid, electromagnets positioned to form a magnetic field through and at right angles to the conduit, and electrodes perpendicular to the magnetic field for picking up the voltage generated by the flow of fluid through the conduit. The electromagnets are fed by a source of alternating current. Reference coils located adjacent the electromagnets coils supply a reference voltage output. The electrodes supply a signal output. Within the flow meter primary, the two sides of the signal output are electrically connected to the fixed

plates of a variable differential capacitor, and the reference output is electrically connected to the movable plate of the



differential capacitor, thereby permitting cancellation of unwanted in-phase errors in the signal output.

3,575,052

MASS FLOWMETER

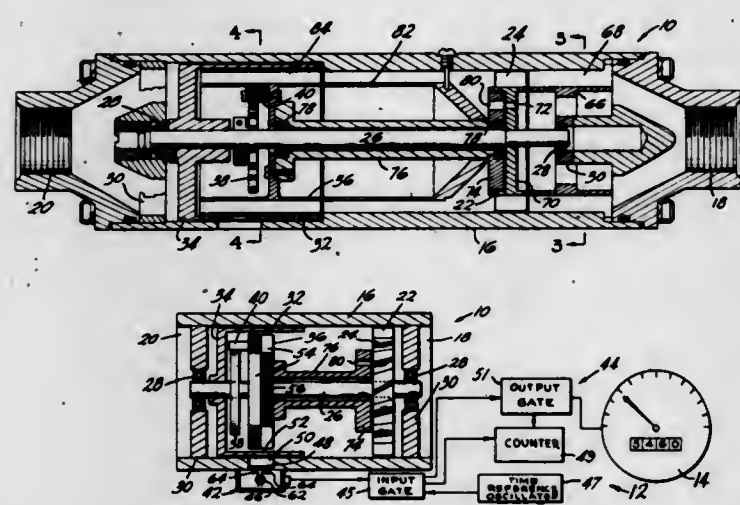
Paul E. Lenker, Davenport, Iowa, assignor to The Bendix Corporation

Filed Mar. 17, 1969, Ser. No. 807,699

Int. Cl. G01f 1/12

U.S. Cl. 73-231

12 Claims



A fluid flowmeter capable of providing a true-mass flow rate readout in which a fluid powered drive turbine and a reaction turbine are arranged in the flowing fluid so that the reaction turbine is driven by the drive turbine in a manner such that the reaction turbine lags the drive turbine by a lag angle which is proportional in magnitude to the mass flow rate of the stream. A variable bypass opening is provided in the drive turbine which is closed at zero flow rate and is automatically progressively opened as the lag angle is increased to thereby enable accurate operation of the flowmeter over a significant flow range. An optical device is provided for continuously reading out the lag angle, by providing a time measurement, to provide a continuously recurring indication of flow rate.

3,575,053

CRYOGENIC LINEAR TEMPERATURE SENSOR

John C. Telinde, Westminster, Calif., assignor to McDonnell Douglas Corporation

Filed July 11, 1968, Ser. No. 744,106

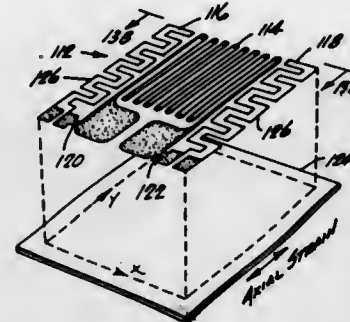
Int. Cl. G01k 7/18; H01c 3/00

U.S. Cl. 73-362

9 Claims

Cryogenic temperature sensor having a linear resistance response down to almost absolute zero. Sensor includes a manganin element and a nickel element connected in a series combination wherein there is of the order of five times as much manganin as nickel (in resistance). The manganin-nickel temperature sensor may be used in a bridge circuit to provide linear output indications of the temperatures sensed

by the sensor. Different sensor configurations having specific features and advantages were developed to reduce sensor



sensitivity to strain and errors due to temperature gradients existing across a sensor, among other benefits.

3,575,054

PRESSURE SENSING DEVICE

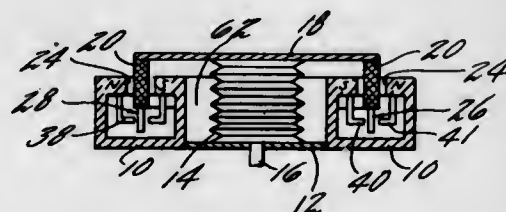
Edward M. Glista, East Longmeadow, Mass., assignor to United Aircraft Corporation, East Hartford, Conn.

Filed Mar. 12, 1969, Ser. No. 806,586

Int. Cl. G01f 9/14

U.S. Cl. 73-398R

5 Claims



A bellows chamber has directly connected thereto a restoring force coil and Hall field plate position sensing devices which utilize the same DC magnetism as the restoring force coil. DC magnetism may be provided by an annular permanent magnet, and the pressure responsive bellows may be disposed in the annulus of the magnet. One or more Hall devices may be disposed directly on the restoring force coil. In another embodiment, a pair of pressures may be monitored in a device having a bellows chamber for each pressure, the restoring force coil, sensor and magnet relating to one of said bellows being disposed adjacent the other of said bellows, with linkage interconnecting each bellows with corresponding force restoring and sensing devices, thereby providing for mechanical advantage between the force applied by the coil and the force applied to the bellows, so as to reduce the magnetic field requirements and thus the physical size of the device, for a given pressure. In another embodiment, the magnet, restoring coil and sensors may be disposed at the moveable end of a bellows chamber, opposite the pressure inlet. In another embodiment of the invention, a diaphragm may be utilized to define a chamber having a wall displaceable by pressure differentials thereacross, instead of a bellows chamber.

3,575,055

APPARATUS FOR AUTOMATICALLY SAMPLING SOLIDS

Audis H. Thornton, Jr., Lake Charles, La., assignor to Continental Carbon Company, Houston, Tex.

Filed Oct. 16, 1969, Ser. No. 866,906

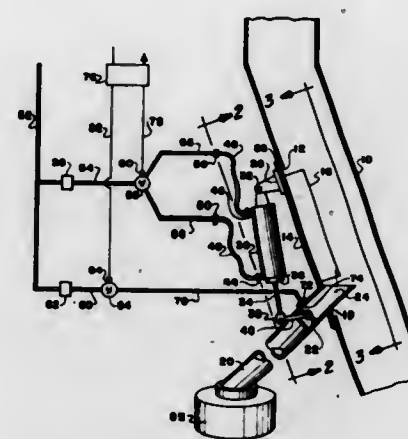
Int. Cl. G01n 1/20

U.S. Cl. 73-422

10 Claims

A sampling apparatus for automatically sampling solids at regulated time intervals from a conduit carrying said solids comprising a base member affixed over an opening in the conduit and having a sampling tube extending through the member and the conduit and into the path of guide vanes mounted on said base member. The sampling tube has a butterfly valve to form a sampling chamber in the upper end

and the lower end communicates into a sample accumulator. The apparatus has a pneumatic system with a line to purge the sample chamber before the sampling operation and lines



to activate a power cylinder to operate the butterfly valve, and this system is controlled by an electrical system for timing and sequential activation of the components to obtain and transfer samples to the accumulator.

3,575,056

TRACTOR WITH ATTACHMENTS

William J. Schlapman, Winneconne, Wis., assignor to J. I. Case Company, Racine, Wis.

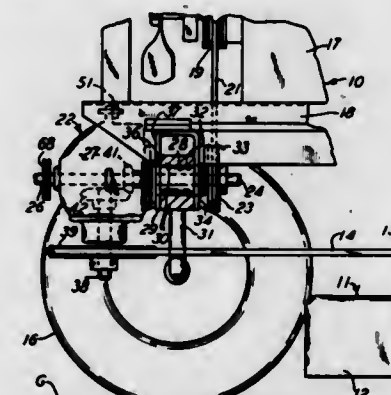
Continuation-in-part of application Ser. No. 625,112, Mar. 22, 1967, now abandoned. This application Dec. 13, 1968,

Ser. No. 783,617

Int. Cl. F16h 37/06

U.S. Cl. 74-15.2

8 Claims



A garden-type of tractor with attachments, such as a snow thrower, a rotary broom, a rotary lawn mower, and the like. A gear box is swingably mounted on the tractor for selective power transmission between the tractor prime mover and the selected one of the mentioned attachments. An input shaft is in the gear box, and it is constantly rotated by the prime mover in only one direction. However, an output shaft is in the gear box and is in driving relation to the input shaft and is rotated in accordance with the direction of swinging adjustment of the gear box on the tractor. Thus, the attachments are operatively connected to the output shaft to be accordingly driven or rotated in the desired directions. Further, connection means extend between the tractor frame and the gear box, in one embodiment of the invention, for holding the gear box in its selected position. In another embodiment of the invention, connection means extend between the tractor axle, which is pivotal, and the gear box, for securing the gear box with the pivotal axle and have it pivot or oscillate along with the pivoting of the axle.

3,575,057

DRIVE MECHANISM

Victor J. Kurowski, Louisville, Ky., assignor to General Electric Company

Filed Dec. 20, 1968, Ser. No. 785,514

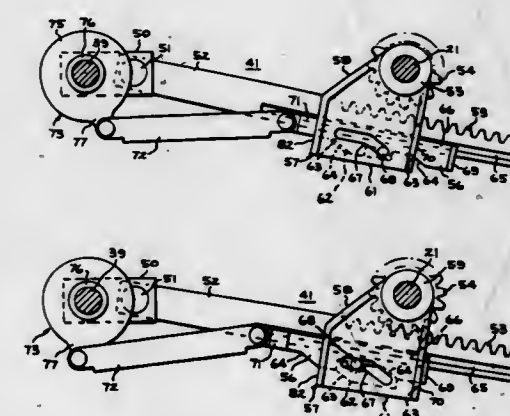
Int. Cl. F16h 19/04; D06f 29/00

U.S. Cl. 74-30

7 Claims

A drive mechanism for an automatic clothes washer is provided having a single reversibly rotatable input shaft and

first and second concentric output shafts. The first output shaft connects with an agitator for low speed oscillation thereof when the input shaft rotates in one direction. The second output shaft connects to a washing basket for high speed centrifugal extraction rotation thereof when the input shaft rotates in the opposite direction. A first direction responsive means for operating the first output shaft comprises a crank member operably connected to the input



3,575,058

MOTION TRANSMISSION DRIVE

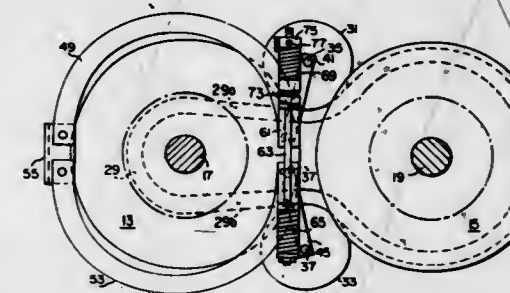
Charles E. Kraus, Allendale, N.J., assignor to Excelmatic, Inc.

Continuation-in-part of application Ser. No. 499,560, Oct. 21, 1965. This application Aug. 20, 1968, Ser. No. 753,941

Int. Cl. F16h 7/12; 55/56; F16g 1/24

U.S. Cl. 74-227

18 Claims



A power transmission device having a pair of pulleys connected by a traction transmitting member such as a chain, such chain being of sufficient length to provide intentionally a certain amount of sag between the pulleys with control of both slack and tight side chain pull and control of maximum ratio of tight to slack pull. Continuous tension on both tight and slack sides of the member is applied to provide for adequate wrap of the member around the pulley. The pulleys may be of variable pitch type to provide for adjustable speed operation under suitable control.

The chain has longitudinally extending contact surfaces engaging the pulley flanges which lie along the centerline of the chain, are essentially flat, match the pulley flange surfaces, and are positioned between the joints of the chain links.

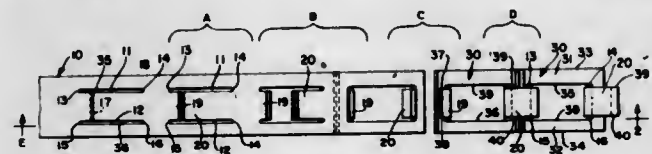
3,575,059

A CHAIN FORMED OF INTERCONNECTED FLAT LINKS
Joseph T. Chester, Fulton, Ill., assignor to Richard A. Kummerer, Fulton and Alfred Den Beston, Fulton, Ill., a fractional part interest to each

Filed Mar. 11, 1968, Ser. No. 711,943
Int. Cl. F16g 13/02

U.S. Cl. 74-249

4 Claims



A chain composed of interconnected links, each link having sides with inner longitudinal edges and a cylindrical hook end and a pintle stub at opposite ends and in which the cylindrical hook and stub have outer edges spacedly inward of the inner edges of the sides and the outer edges are joined by a semicircular juncture, and the chain formed of flat metal strip stock by stamping elongated parallel notches in the stock parallel to and inwardly of the edges, and scoring transversely across the center section between the notches; severing along the score and bending one part of the center section to form a pintle end of a link and bending the other part of the center section arcuately to form a hook end of the link that journals on the pintle end of an adjacent link.

3,575,060

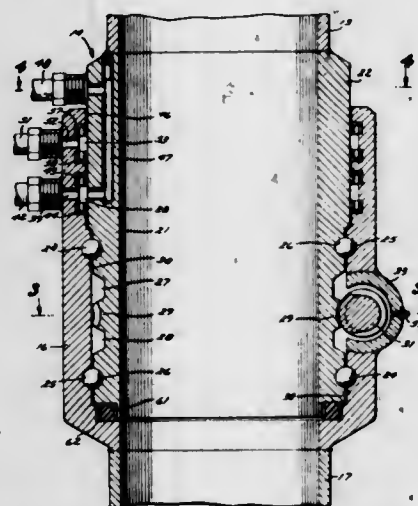
POWER-OPERATED AND MANUALLY-OPERATED SWIVEL JOINT

Leonard A. Warren, Whittier, Calif., assignor to Stang Hydronics Inc., Orange, Calif.
Original application Aug. 28, 1968, Ser. No. 755,919, now abandoned. Divided and this application Apr. 9, 1970, Ser. No. 26,880

Int. Cl. F16h 1/16

U.S. Cl. 74-425

11 Claims



A low-friction swivel joint has incorporated therein a worm wheel, the latter being rotated by a worm driven by a fluid motor. A second and corresponding swivel joint is also provided, being driven by fluid which is passed through the first-mentioned joint in order that there will be not twisting of pipes or conduits. The passage of fluid through the first-mentioned joint is effected by transfer rings and associated grooves and passages.

3,575,061

TORSION ROD SHIFT MECHANISM FOR TRANSMISSION

Benjamin T. Howes, Birmingham, Mich., assignor to Ford Motor Company, Dearborn, Mich.
Filed Nov. 24, 1969, Ser. No. 879,466

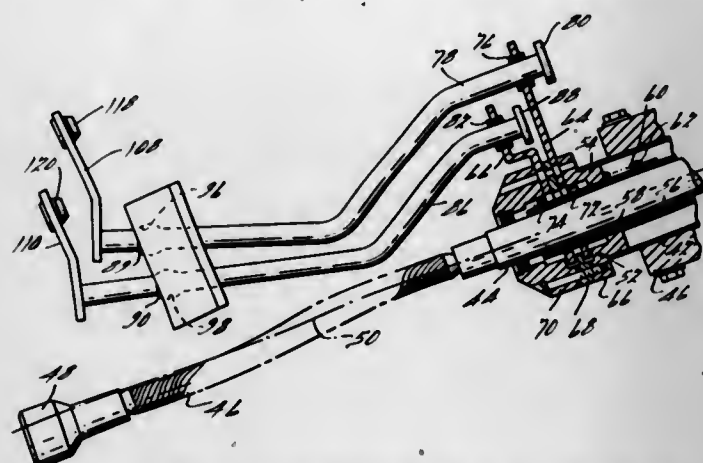
Int. Cl. G05g 9/02

U.S. Cl. 74-473SW

6 Claims

A shift linkage mechanism for use with a multiple ratio power transmission mechanism in an automotive vehicle

drive line comprising a torsion rod mounted for universal movement on a fixed part of the vehicle body, a personally operable gearshift lever and a linkage arrangement



connecting one end of the gearshift lever to one end of the torsion rod, the other end of said torsion rod being connected to transmission ratio-controlling elements.

3,575,062

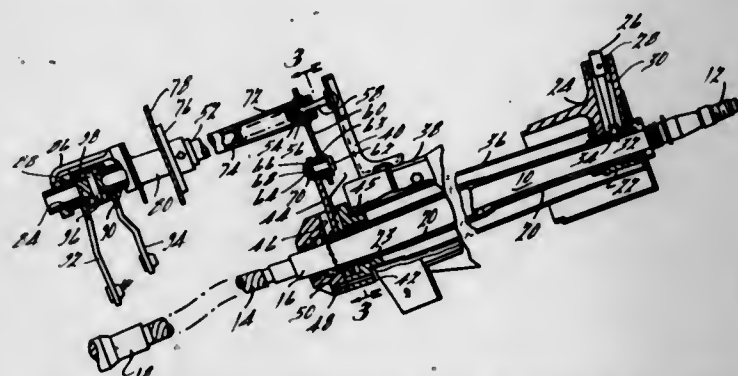
TRANSMISSION SHIFT CONTROL LINKAGE
Ernest W. Kitzner, Allen Park, and Alex Rhodes, Detroit, Mich., assignors to Ford Motor Company, Dearborn, Mich.

Filed Jan. 8, 1970, Ser. No. 1,474

Int. Cl. G05g 9/16

U.S. Cl. 74-484

8 Claims



A gearshift linkage mechanism for use with a so-called mini-steering column in an automotive vehicle comprising a shift tube which is mounted concentrically with respect to a steering column of abbreviated length, a gearshift selector shaft mounted in spaced, parallel disposition with respect to the steering column and an articulated connection between the shift tube and the selector shaft for translating motion of one to the other during transmission ratio changes.

3,575,063

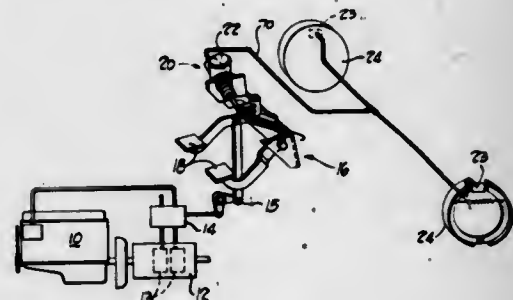
COWL-MOUNTED PEDAL ARRANGEMENT
Harley A. Harrom, Excelsior, Minn., assignor to White Farm Equipment Company

Filed Feb. 5, 1969, Ser. No. 796,763

Int. Cl. G05g 1/14

U.S. Cl. 74-512

10 Claims



A foot-operated pedal assembly with combined mounting incorporating a master cylinder which attaches as a unit to the cowl of a vehicle, especially a lift truck.

3,575,064

OVER-CENTER MECHANISM

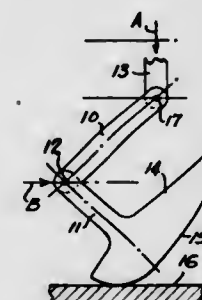
Harry T. Stevenson, Ottawa, Ontario, Canada, assignor to Canadian Patents and Development Limited, Ottawa, Ontario, Canada

Filed Sept. 28, 1967, Ser. No. 671,363

Int. Cl. B25b 7/12

U.S. Cl. 74-520

11 Claims U.S. Cl. 74-720.5



An overcenter mechanism in which the work required to move the mechanism overcenter from the respective sides can be made asymmetrical. For example, while the force needed to move the mechanism in a forward direction overcenter remains substantial, that required to return it to the center position can be made zero or some other chosen value different from, and preferably smaller than, the forward force.

This effect is achieved by building up a specially shaped surface on one or more of the link members of the mechanism and causing this surface to roll on a flat surface as the mechanism moves from side to side across the center position. Alternatively, the flat surface can be built up with a ramp so as itself to be curved.

One useful application of the mechanism is to avoid the need for special release mechanisms in locking wrenches of the overcenter type which otherwise can be very difficult to open.

3,575,065

DIFFERENTIAL GEARING ARRANGEMENT

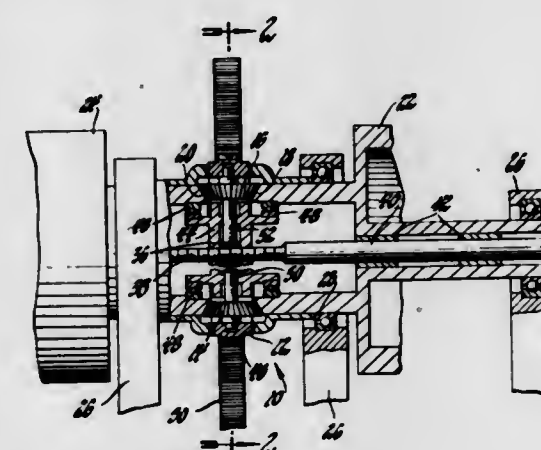
Nathaniel B. Kell, Indianapolis, Ind., assignor to General Motors Corporation, Detroit, Mich.

Filed Sept. 24, 1969, Ser. No. 860,558

Int. Cl. F16h 37/06; B62d 11/00

U.S. Cl. 74-665

2 Claims



This specification describes a differential-gearing unit having two input members and two output members that are interconnected by a spur gear and bevel gear arrangement. One of the inputs engages a ring gear that drives the carrier of the bevel gearing while the other input engages a pair of spur gears that drive the pinions of the bevel gearing. Input motion of the one input results in equal unidirectional motion of the two outputs while input motion of the other input results in equal but opposite motion of the two outputs. Simultaneous motion of both inputs results in a phase change between the two outputs.

3,575,066

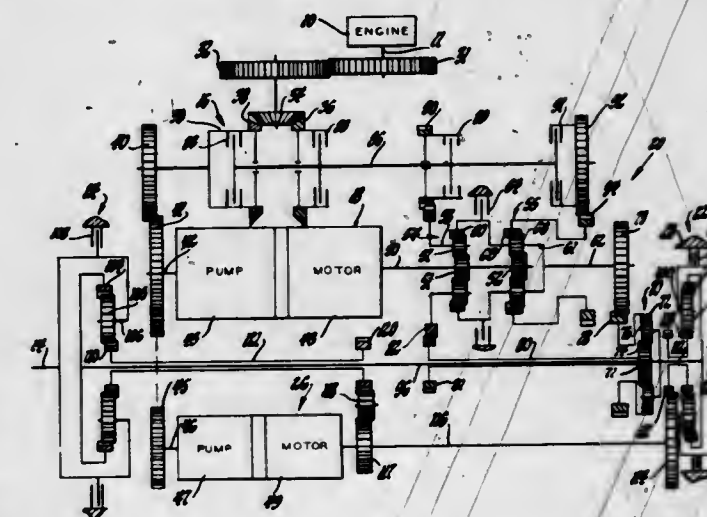
TRANSMISSION

William G. Livezey, James J. Mooney, Jr., and William V. Phillips, Indianapolis, Ind., assignors to General Motors Corporation, Detroit, Mich.

Filed Sept. 23, 1969, Ser. No. 860,247

Int. Cl. F16h 37/06, 47/04

4 Claims



A transmission having a hydrostatic propulsion drive unit combined with planetary gearing to provide in both forward and reverse a full hydrostatic drive in a low-speed range and two different hydromechanical drives in successively higher speed ranges with synchronous drive-establishing device shifting, the transmission with dual output also having a separate hydrostatic steer drive unit combined with the gearing to provide steering. The invention herein described was made in the course of work under a contract or subcontract thereunder with the Department of the Army.

3,575,067

TRANSMISSION

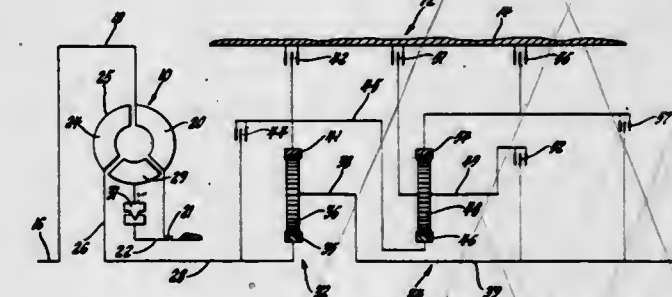
Stanley W. Herman, Indianapolis, Ind., assignor to General Motors Corporation, Detroit, Mich.

Filed Oct. 16, 1969, Ser. No. 866,915

Int. Cl. F16h 57/10

U.S. Cl. 74-759

3 Claims



A vehicular transmission having two planetary gear sets, three brakes and three clutches combined to provide three forward speed range drives and one reverse speed range drive with an extremely high-speed reduction ratio in the lowest forward speed range drive.

3,575,068

SCISSORS SHARPENER

Alton B. Stafford, Vanceburg, Ky., assignor to Herbert M. Bertram, Jr., fractional part interest to each

Filed Apr. 22, 1969, Ser. No. 818,368

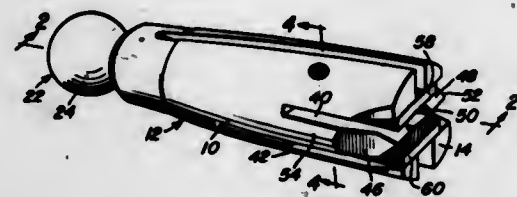
Int. Cl. B21k 11/06

U.S. Cl. 76-82.2

8 Claims

An elongated body having a free end and a central bore formed therein opening outwardly of the free end of the body. The body includes a first longitudinal slot extending transversely therethrough, disposed generally on a diameter

of the bore and opening outwardly of the free end of the body. The body further includes a second longitudinal slot extending transversely through the body with its medial plane



generally tangent to the bore and a bar with roughened opposite sides is secured in the second slot for sharpening the blades of scissors rotated in the bore and shifted longitudinally of the first slot.

3,575,069

RATCHET AND SPEED WRENCH COMBINATION

Kit C. White, 3761 S. Pacific Hwy., Medford, Oreg. 97501

Filed July 29, 1969, Ser. No. 845,766

Int. Cl. B25b 13/00; B25g 1/00; B25b 13/46

U.S. Cl. 81—58.1

3 Claims



A ratchet and speed wrench is provided together with a set of implements comprising sockets and/or screwdriver bits and an optionally usable, upstanding speed handle. A reversible, rotatively mounted, ratchet wheel is completely contained in a ratchet handle or arm, except for a noncircular, lower projection onto which implements may be selectively fitted. The portion of the ratchet wheel within the arm has formed in its upper surface a recess (standard for the set) which is complementary in size, shape and depth to the wheel projection. The upstanding speed handle is adapted to be detachably fitted into the recess of the wheel in axial alignment with the wheel for directly turning the ratchet wheel relative to the ratchet handle. Extension bars may be interposed between the ratchet wheel and the speed handle, and/or between the ratchet wheel and the chosen implement; each bar being provided at its opposite ends with a recess and a projection of the size and shape which is standard for the set.

3,575,070

PINCER-TYPE TOOL

Frank L. Nichols, Warsaw, Ind., assignor to Osborn

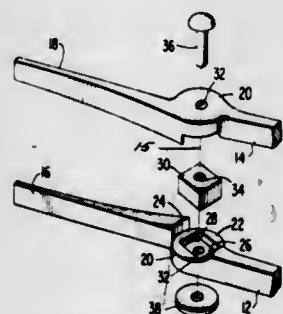
Manufacturing Corporation, Warsaw, Ind.

Filed Oct. 14, 1968, Ser. No. 767,440

Int. Cl. B25b 7/08

U.S. Cl. 81—416

7 Claims



Disclosed is a pincer-type tool having elongated members pivotally mounted in overlying relation one to the other

intermediate their ends with the jaw and handle portion of each member lying on respective opposite sides of the other member. The overlying portions of the members have recesses facing one another and a block of elastomeric material is disposed within the recesses with the members being pivotally secured one to the other by a rivet extending through the overlying portions and the elastomeric element. The recesses and element are complementarily polygonally shaped such that the elastomeric block biases the members into a predetermined position relative to one another. The recesses are arranged to normally locate the jaws of the members in butting or spaced relation one to the other in the respective embodiments hereof.

3,575,071

TEMPLATE SUPPORT APPARATUS FOR A MACHINE TOOL

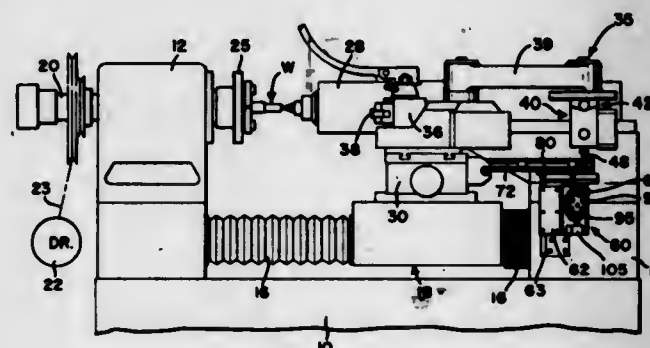
Raymond J. Miller, Sun City, Ariz.; Jesse W. Elliott, Dayton, and Ralph R. Nevin, Piqua, Ohio, assignors to H & H Industries, Inc., Dayton, Ohio

Filed June 30, 1969, Ser. No. 837,725

Int. Cl. B23b 3/28; B23c 1/18

U.S. Cl. 82—14

10 Claims



A precision turning machine is provided with an automatic hydraulic tracer control unit including a stylus adapted to engage a template. A carriage supports the template and is shiftable horizontally on an angle relative to the turning axis and in incremental steps in response to indexing of a wheel having a plurality of individually adjustable stop screws. The carriage and template are shiftable in precise increments between successive passes of the cutting tool to produce automatic successive roughing and finishing cutting operations according to the contour of the template.

3,575,072

MACHINE TOOLS

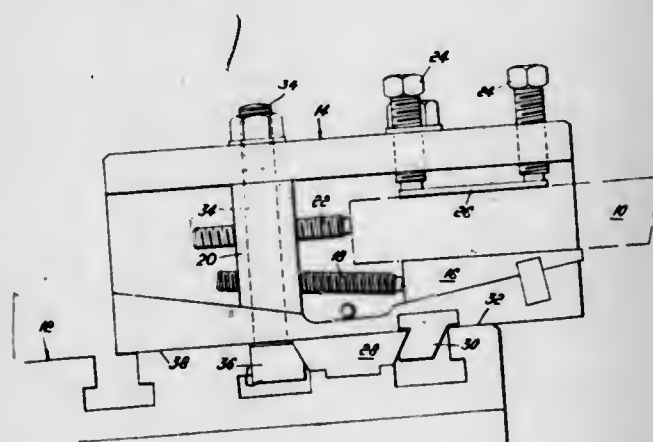
Derek Alan George Silver, and Maurice George Small, Slough, England, assignors to William Owen McKenzie Jones, Maidenhead, Berkshire, England

Filed Jan. 24, 1968, Ser. No. 700,107

Int. Cl. B23b 21/00

U.S. Cl. 82—24

4 Claims



A male dovetail member mountable at one or more tool operating stations of a multispindle lathe including means for

accurately locating, aligning and fixing the same at predetermined positions in relation to fixed parameters of the lathe; the dovetail member having a pair of uninterrupted reference and support surfaces each of which serves to selectively fix removable preset tools and tool holders in predetermined locations with respect to established reference parameters of the lathe.

3,575,073

TOOL AND TOOL HOLDER

Robert C. Zeller, 643 Clinton St., and Warren W. Weible, 635 Holgate Ave., Defiance, Ohio 43512

Original application Mar. 17, 1967, Ser. No. 623,938, now

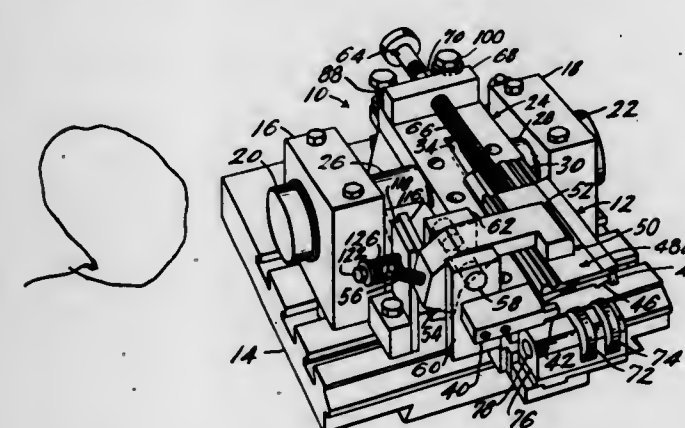
Patent No. 3,503,287. Divided and this application Feb. 10,

1969, Ser. No. 817,210

Int. Cl. B23b 29/00

U.S. Cl. 82—36

8 Claims



The invention is directed to a shave tool and a shave tool holder for cutting and forming machines, e.g., screw machines. The tool has a transverse cross section which is shaped, in part, the same as the piece to be machined so that the tool can be sharpened merely by grinding an end portion thereof. Also, all but a small portion of the tool can be utilized. The tool holder has adjustments for accurately positioning the tool with respect to a workpiece, with all of the adjustments being readily accessible. The tool holder has a contoured surface supporting the tool, with the mating surfaces of the holder and tool positioning the more critical areas of the tool precisely with respect to the workpiece.

3,575,074

APPARATUS TO CONTROL THE FEEDING AMOUNT IN BANDSAWING MACHINES

Tsuneo Aizawa, Isehara-Cho, Japan, assignor to Amada Co., Ltd., Tokyo, Japan

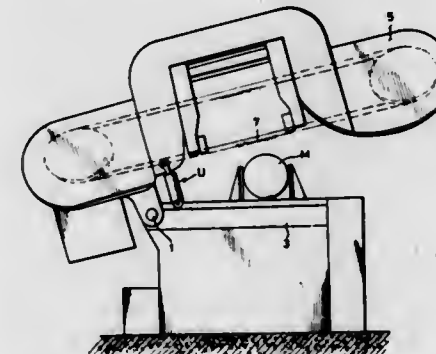
Filed Mar. 6, 1968, Ser. No. 710,839

Claims priority, application Japan, June 12, 1967, 42/37241

Int. Cl. B26d 1/46

U.S. Cl. 83—201.06

6 Claims



Apparatus to control the feeding amount in hydraulically controlled band sawing machines having a pivotable frame which supports the bandsaw, and a hydraulic cylinder for lifting and lowering the frame with respect to the material to

be cut, comprising a hydraulic pressure control means for the cylinder, valve means (preferably with a knife-edge shaped outlet) for controlling the quantity of hydraulic fluid reaching the cylinder, and at least one hydraulic connection, namely between the outlet of the control means and the inlet of the valve means.

3,575,075

APPARATUS FOR CUTTING MULLION TUBES

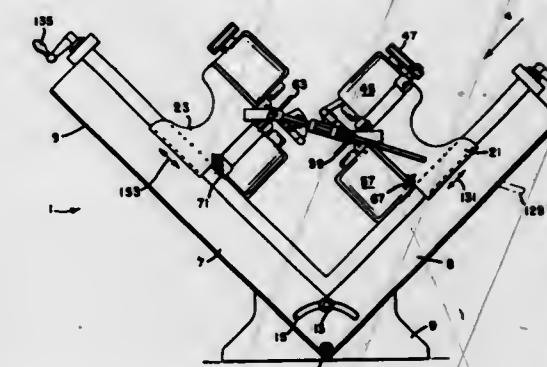
Phillip J. M. Fisher, Albany, N.Y., assignor to Alban I. Jacobson, Latham, N.Y.

Filed June 23, 1969, Ser. No. 835,430

Int. Cl. B26d 3/02

U.S. Cl. 83—409

4 Claims



Discloses an apparatus for mitering the ends of mullion tubes for diamond-shaped mullion devices and, by such mitering, cutting inclusively the mullion tubes to their required lengths.

This invention relates to an apparatus for mitering the ends of mullion tubes for diamond-shaped mullion devices and, by such mitering, inclusively cutting the mullion tubes to their required lengths. Saw means and work-guide means are mounted on adjustable carriage means. The carriage means has an access aperture to permit the mullion tubes to be fed longitudinally to the work-guide means.

3,575,076

HOLD-DOWN APPARATUS FOR MATERIAL-CUTTING MACHINE

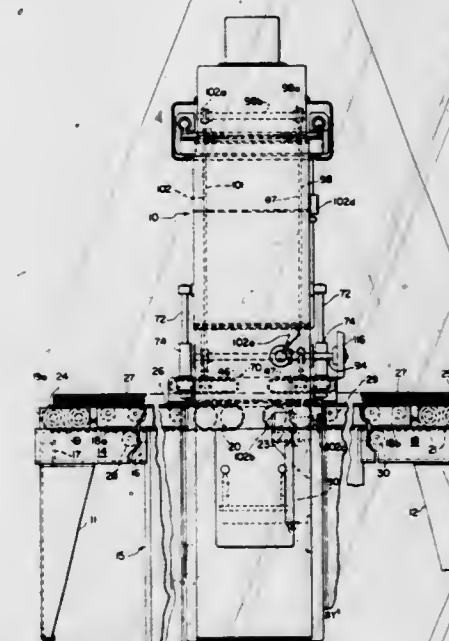
Herman J. Baldwin, and Phillip F. Stapf, Jr., Cincinnati, Ohio, assignors to Cincinnati Milacron Inc., Cincinnati, Ohio

Filed Sept. 3, 1968, Ser. No. 757,011

Int. Cl. B26d 5/20

U.S. Cl. 83—422

17 Claims



A pair of endless bands is disposed on opposite sides of a transversely moving cutting blade to exert a predetermined

downward force on material, which is advanced longitudinally relative to the cutting blade. Each of the endless bands is passed around a pair of rollers, which are rotatably mounted in a housing. The housing is rockably supported to accommodate uneven surfaces of the material while still maintaining contact with the material through a portion of the band so as to exert the predetermined downward force on the material. Each of the housings has means therein to produce a bow in the roller adjacent its central portion whereby the band will track properly.

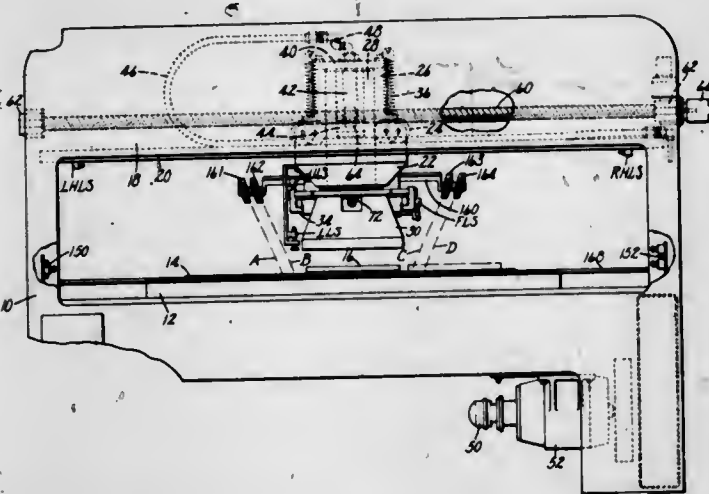
3,575,077

CONTROLS FOR TRAVELING HEAD-CUTTING PRESSES

Donald F. Herdeg, Beverly, and William B. Longval, Danvers, Mass., assignors to USM Corporation, Flemington, N.J.
Filed Feb. 14, 1969, Ser. No. 799,410
Int. Cl. B26d 5/12

U.S. Cl. 83-524

7 Claims



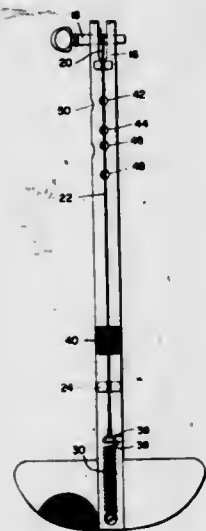
A traveling head cutting press is provided with light-responsive control means operative in accordance with the movements of the operator, without necessitating diversion of the operator's attention from work manipulation, for initiating platen movement of translation, either in initiating cutting strokes in response to withdrawal of the operator's hands from the danger zone or in causing traverse movement with the head in following the die placement area along the work. The control means is operative to terminate the platen movement automatically.

3,575,078

MUSICAL STRING INSTRUMENT
Robert N. Currier, 9 Second St., North Providence, R.I.
Filed Sept. 11, 1968, Ser. No. 759,009
Int. Cl. G10d 1/02

U.S. Cl. 84-173

3 Claims



An elementary bowed string instrument having a string tensioned by an extendable spring anchored at one end to

enable the string to be tuned visually by a marker cooperating with a pointer carried by the string.

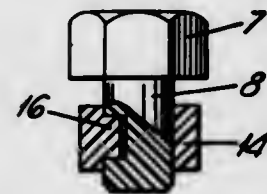
3,575,079

QUICK RELEASE FASTENER

Howard John Leonard Smith, Farnham, Surrey, England, assignor to Dzus Fastener Co., Inc., West Islip, N.Y.
Filed June 26, 1969, Ser. No. 836,914
Claims priority, application Great Britain, June 28, 1968, 31060/68
Int. Cl. F16b 19/00

U.S. Cl. 85-5

3 Claims



A fastener comprises two members which are both moulded from resilient plastics material. One of the members is a stud having a cylindrical shank with a head at one end, a flat at the other end and a notch spaced away from the other end and intersecting the flat. The other member is a retaining member having a socket with a retaining web extending across a portion of the socket. To assemble the fastener the shank is inserted into the socket with the flat accommodating the web. The stud is then turned relatively to the retaining member so that the web in the socket is received in the notch in a locked position of the two members. The base of the notch intersects the flat at an acute angle so that an edge portion of the flat is undercut and the undercut edge portion is deformed by the web as the stud is turned until a dead center position is reached whereafter the stud snaps into the locked position. The stud may be formed as a bolt and the retaining member as a nut.

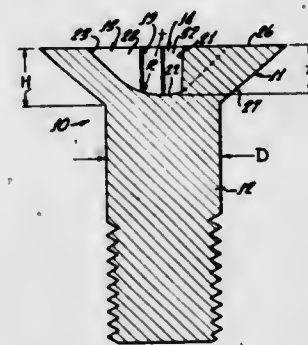
3,575,080

FASTENER WRENCHING MEANS

Patrick M. Hannay, 1116 Akron St., San Diego, Calif. 92106
Continuation-in-part of application Ser. No. 710,904, Mar. 6, 1968, now abandoned. This application Dec. 2, 1968, Ser. No. 786,890
Int. Cl. B25d 15/00; F16b 23/00, 35/00

U.S. Cl. 85-45

10 Claims



A wrenching means for a fastener including a recess having a plurality of pockets in a substantially equally spaced relationship, the pockets being of substantially the same width, and the fastener intermediate the pockets having the same width as that of the pockets, the pockets having forward and rearward driving edges which are planar and, if extended, would intersect at the axis of the fastener.

3,575,081

A CAMERA HAVING A COMBINED VIEWFINDER AND SLIDE VIEWER

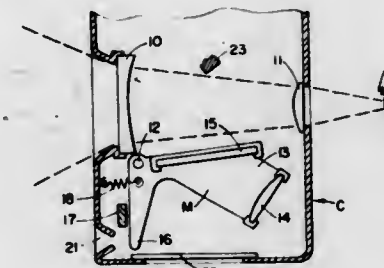
Hubert Nerwin, Rochester, N.Y., assignor to Eastman Kodak Company, Rochester, N.Y.
Filed Jan. 24, 1968, Ser. No. 700,057
Int. Cl. G03b 13/02

U.S. Cl. 88-1.5

8 Claims

A device is provided in a camera wherein the eyepiece of the viewfinder can be utilized in a slide viewer for viewing

slide transparency units when inserted in the camera. The transparency is positioned off the axis of the viewfinder and a mirror is moved into the field of the eyepiece in response to insertion of a slide to change the device from a viewfinder to



a slide viewer. Because it may be convenient to locate the transparency too close to the eyepiece for normal power of a viewfinder eyepiece, an auxiliary lens is moved into the system with movement of the mirror.

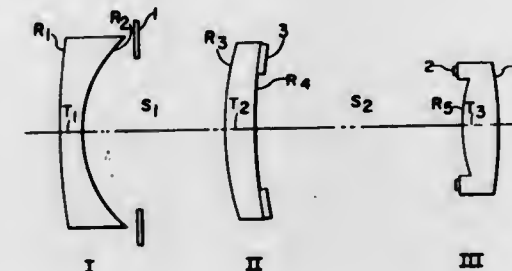
3,575,082

ALBADA VIEWFINDER HAVING THREE LENS COMPONENTS

Gilbert William McClune, Rochester, N.Y., assignor to Eastman Kodak Company, Rochester, N.Y.
Filed June 24, 1968, Ser. No. 739,290
Int. Cl. G03b 13/08

U.S. Cl. 88-1.5

2 Claims



An Albada viewfinder comprising a negative aspheric objective and a positive eyepiece between which is located a positive meniscus element having on its rear surface a mirror for forming a virtual image of a reticle mark.

3,575,083

ANTENNA WIRE LAUNCHER AND BOBBIN PROJECTILE

John A. Hudick, E. Palo Alto, and Robert A. Rach, Los Altos, Calif., assignors to Stanford Research Institute, Menlo Park, Calif.
Filed Dec. 9, 1968, Ser. No. 782,219
Int. Cl. F41f 3/04; F42b 15/06

U.S. Cl. 89-1

13 Claims



A small launcher and bobbin projectile is disclosed for draping a thin copper wire across the top of a tree for use as an antenna in emergency radio communications. The bobbin projectile comprises a suitable bobbin of wire with a nose cone. The bobbin is fitted on one end of a metal tube. The other end contains a cartridge of solid grain rocket fuel having a conventional bullet primer as an igniter. An inertia-type firing pin in the launcher is propelled by a hammer into the primer against the projectile mass. The rocket propelled projectile is spin stabilized by means of canted exhaust ports. The loose end of the wire is anchored on the ground, and the wire is payed out as the projectile ascends.

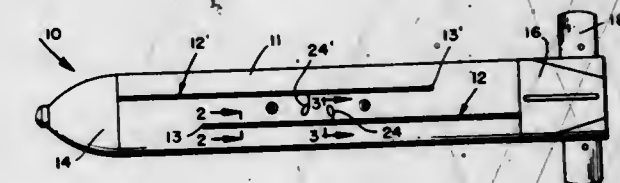
3,575,084

ARMING WIRE ASSEMBLY

Dennis E. Glendenning, Fort Walton Beach, Fla.; Charlie R. Rodgers, and Roy W. Martin, Ridgecrest, Calif., assignors to the United States of America as represented by the Secretary of the Navy
Filed Dec. 11, 1968, Ser. No. 782,930
Int. Cl. F41f 5/02

U.S. Cl. 89-1.5

3 Claims



The invention relates to an ordnance item arming wire, of the type in which one end is anchored and the other end holds a fuze or the like in unarmed condition, and a housing for the wire, in the form of a generally U-shaped strip of plastic, rubber or the like forced into a groove or otherwise fastened to the ordnance item so that the open edges of the strip are forced together for protecting the wire against the weather and aerodynamic forces yet can be forced apart to permit sliding of an attachment bridle along the wire to an optimum position for attachment to any of variously positioned stations on different launcher racks.

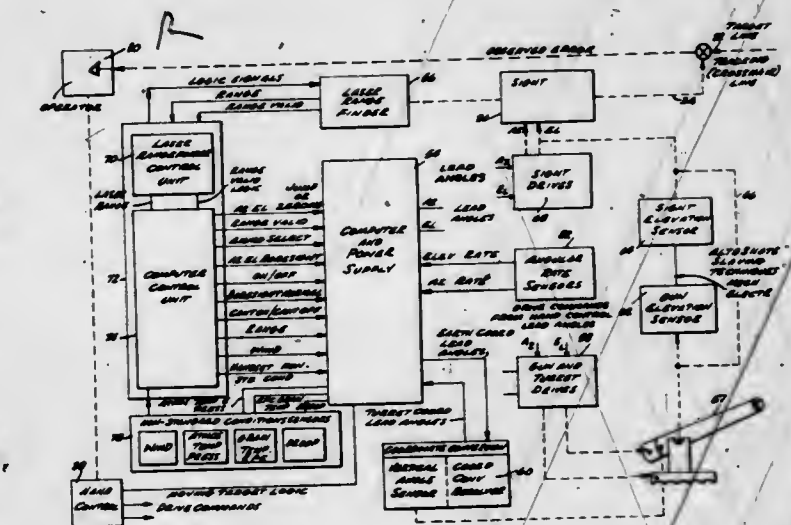
3,575,085

ADVANCED FIRE-CONTROL SYSTEM

William E. McAdam, Jr., Thousand Oaks, Calif., assignor to Hughes Aircraft Company, Culver City, Calif.
Filed Aug. 21, 1968, Ser. No. 754,344
Int. Cl. F14f 3/08; F14f 3/12, 3/00

U.S. Cl. 89-41R

36 Claims



A fire-control system for vehicle or tank control that provides a high first hit probability. The system is highly stable because of a sampling concept and is highly accurate because of the handling of nonstandard conditions. Reliable operation is provided for a moving tank or target, or both, and for noncoaltitude conditions.

3,575,086

ROUTING MACHINE

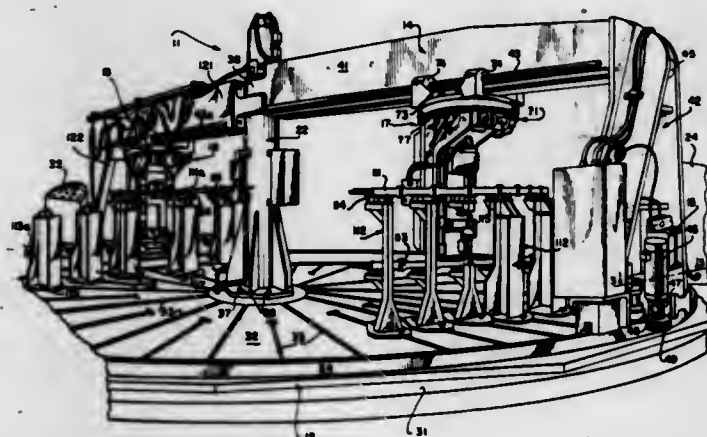
Lionel G. Davis, Atlanta, Ga., assignor to Lockheed Aircraft Corporation, Burbank, Calif.
Filed July 3, 1969, Ser. No. 838,852
Int. Cl. B23c 1/16

U.S. Cl. 90-13.5

11 Claims

A routing machine having substantial automatic capability to route one or more workpieces at once which will conform to a template wherein the routing machine has a capability of 360° movement to rout work items of complex radii. The machine in the preferred embodiment comprises a pair of horizontally extending boom arms which are independently rotatable about a central pivot post. Each boom arm has a

spindle assembly which moves radially along the boom arm from the centerpost and which carries the tracer to follow a template pattern and a router which cuts a workpiece to duplicate the contours of the template. Each boom arm is



complete in itself and is independently controllable to trace a template and to rout workpieces mounted upon workstands whose positions are radially adjustable to fit the configuration of the desired template and workpiece.

3,575,087

LOCKING CYLINDER

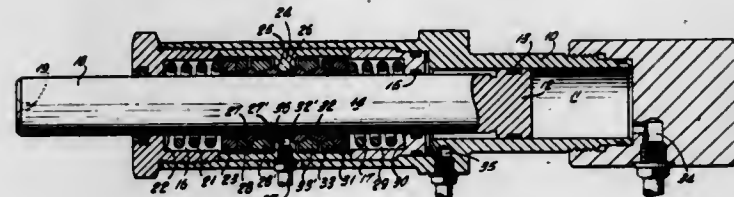
Walter A. Sherwood, Hempstead, N.Y., assignor to Lourdes Industries, Inc., Farmingdale, N.Y.

Filed Nov. 18, 1968, Ser. No. 776,490

Int. Cl. F15b 15/26

U.S. Cl. 92-23

15 Claims



A hydraulic cylinder and piston designed to move a load to a desired position and to lock in that position for extended periods of time, until released, even though fluid pressure to the cylinder may be interrupted, as by leakage or a break in the supply line, the locking being effected by the frictional engagement of one or more collets with the piston rod under the influence of one or more spring-biased collet closure rings.

3,575,088

VACUUM MODULATOR

Richard J. Bauer, Davison, Mich., assignor to General Motors Corporation, Detroit, Mich.

Original application Aug. 30, 1968, Ser. No. 756,679, now Patent No. 3,545,070. Divided and this application June 2,

1970, Ser. No. 42,759

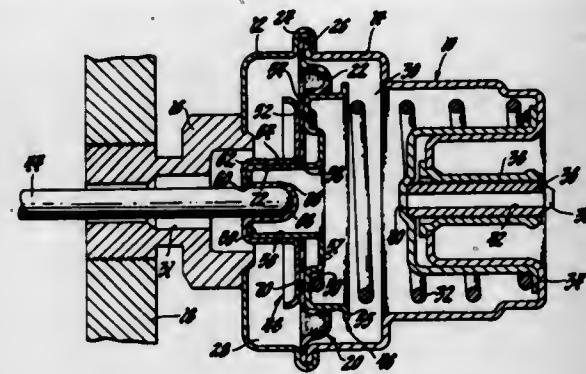
Int. Cl. F01b 19/00

U.S. Cl. 92-98

2 Claims

A vacuum modulator for an automotive automatic transmission control system is shown as having a subassembly including a diaphragm separating an atmospheric chamber from a vacuum chamber to which engine vacuum is applied for automatic transmission control purposes. Two stiff members sandwich the diaphragm in the subassembly, the member on the engine vacuum side serving as a seat for a spring providing the modulator's spring bias. The other member is on the atmospheric pressure side and has a socket receiving a control rod which is for transmitting the modulator's output force to a modulator valve in the transmission control system. The vacuum side member has a sleeve portion which extends through an aperture in the diaphragm and into an annular channel in the atmospheric pressure side member so that the sleeve portion is positioned

between the channel's inner and outer wall. The outer channel wall is staked to the sleeve portion to provide mechanical connection in the subassembly. Apparatus is also



shown for the staking operation which in cooperation with a radial section of the sleeve portion engaging the channel prevents crushing of the socket during the staking operation.

3,575,089

GUDGEON PIN CONNECTION FOR INTERNAL COMBUSTION ENGINE

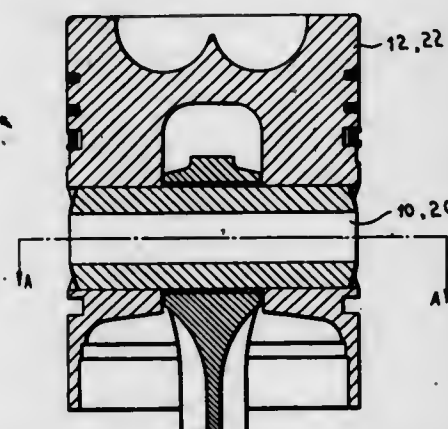
James Millar Smith, Whittle-Le-Woods, Chorley, England, assignor to Leyland Motors Limited, Leyland, Preston, Lancashire, England

Filed Feb. 10, 1969, Ser. No. 798,077

Int. Cl. F16j 1/14; B23p 15/10

U.S. Cl. 92-187

3 Claims



The specification describes the making of a gudgeon pin connection in the construction of internal combustion engine, the connection being characterized by the facing of the ends of the pin, which forms the connection between the small end of a connecting rod and piston of the engine, with material different of that of the pin itself deposited in layers of appropriate thickness.

3,575,090

METHOD AND APPARATUS FOR MAKING SQUARE BOTTOM BAGS FROM THERMOPLASTIC WEB MATERIAL

Corey T. Hook, Green Bay, Wis., assignor to FMC Corporation, San Jose, Calif.

Filed Nov. 27, 1968, Ser. No. 779,453

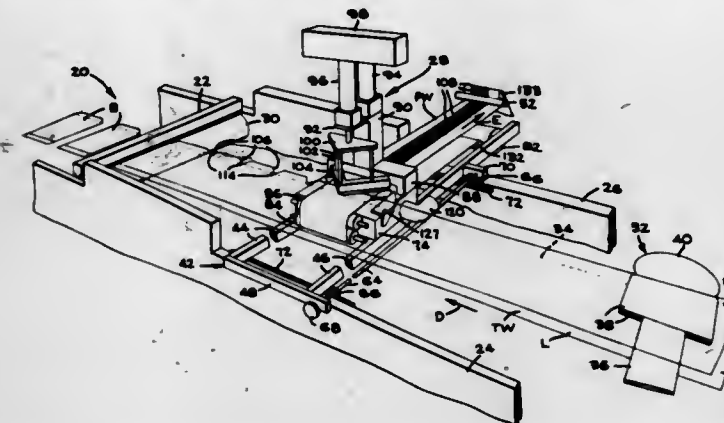
Int. Cl. B26d 7/118; B31b 1/96, 1/22

U.S. Cl. 93-33

8 Claims

A folded web of thermoplastic material, such as polyethylene, is fed to a bagmaking machine set up to produce side weld bags. The folded edge of the web encounters a gusseting attachment which forms a reverse fold at this edge. Downstream of the gusseting attachment an apparatus is provided for removing a generally triangular web portion from the gusseted margin of the web by a heated cutting and sealing bar having a configuration corresponding to the removed web portion. During removal of a web portion, hereinafter sometimes referred to as a slug or a chip, areas coming in contact with the cutting and sealing bar are rendered molten. Immediately after removal, the chip is brought in firm contact with a paper web which is located immediately below the thermoplastic web and the molten edges of the chip become attached to the paper web. During

each cycle of the bag machine the paper web is indexed to present an additional area for reception of a chip. The chips are attached to the paper web in shingled or overlapping



relation. The web portion carrying the waste slugs or chips is fed to any suitable waste receptacle that may be located adjacent the bag machine.

3,575,091

CUTTINGS REMOVER FOR SLOTTING MACHINES

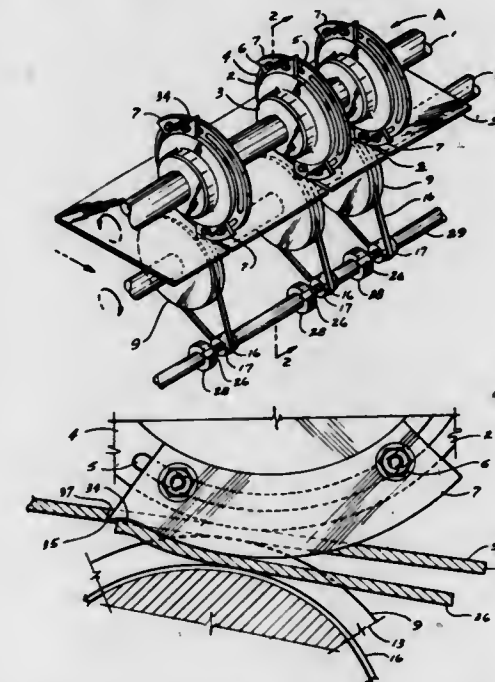
Victor LaBantschnig, St. Louis, Mo., assignor to Orchard Container Corporation, St. Louis, Mo.

Filed Aug. 4, 1969, Ser. No. 847,146

Int. Cl. B31b 1/22, 1/92

U.S. Cl. 93-36

8 Claims



For use with a slotting machine a device for speedy and efficient removal of the cuttings comprising a shaft carrying an arcuate die, a second shaft parallel to said first shaft and located downwardly thereof and carrying a grooved drum. Said drum is located spacedly beneath the die for movement of a blank therebetween with the groove presented for accepting said die during cutting operation. A friction-producing belt carried in said groove for engaging the cutting driven thereby by said die for carrying and impelling said cutting outwardly of said machine.

3,575,092

HIGHWAY DIVIDER BUTTON

Clarence S. Freeman, Box 1204, Beaumont, Tex. 77704

Filed May 22, 1969, Ser. No. 826,799

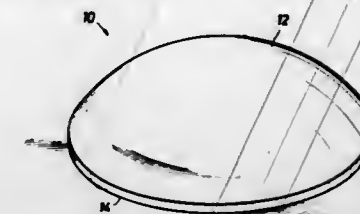
Int. Cl. E01c 23/16

U.S. Cl. 94-1.5

10 Claims

For use along divider strips on highways, a button which is attached to the pavement to remind drivers to stay in divided lanes, the button preferably being comprised of an ionomer base which provides desirable abrasion-resistant and impact-resistant characteristics, the base having added thereto a suitable filler such as titanium oxide to impart a desired color thereto and being joined to the pavement through a preferably integral adhesive which is dry and nontacky at

most temperatures, but which becomes adhesive at elevated temperatures to join the button to the pavement. The button,



when joined to the pavement, is particularly advantageous in the absorption of impact or shock and does not transmit pavement-damaging shock to the pavement.

3,575,093

STABLE PLATFORM HAVING MEANS FOR REDUCING GYROSCOPE CONSTANT BIAS ERRORS

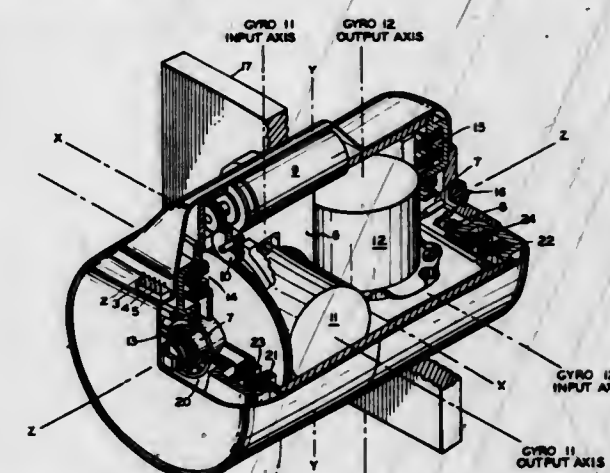
William Packard, Fair Lawn, and George W. Brown, Saddle Brook, N.J., assignors to The Bendix Corporation

Filed Oct. 7, 1968, Ser. No. 765,331

Int. Cl. G01c 19/30

U.S. Cl. 74-5.34

16 Claims



A stable platform controlled about two axes and having a pair of single-degree-of-freedom gyroscopes rotatably mounted with their spin axes parallel and their input axes mutually perpendicular and forming a plane parallel with the platform controlled axes. The gyroscopes are rotated about an axis parallel to their spin axes and provide signals corresponding to their respective attitudes. A signal resolver responsive to gyro rotation resolves the gyro attitude signals into signals corresponding to the stable platform attitude for controlling the stable platform. Initial position sensors provide signals corresponding to the error in the initial attitude of the stable platform relative to a predetermined attitude. A torque command resolver, also responsive to gyro rotation, resolves the initial error signals into signals corresponding to gyroscope attitude for initial erection of the gyroscopes and the stable platform to the predetermined attitude.

3,575,094

EXPANSION JOINT WITH WATER LOCK

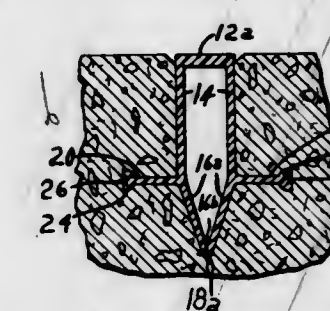
Charles S. Hewitt, Hacienda Heights, and Gary L. Timothy, La Puente, Calif.

Continuation-in-part of application Ser. No. 548,121, May 6, 1966, now abandoned. This application Sept. 26, 1968, Ser. No. 771,380

Int. Cl. E01c 11/10

U.S. Cl. 94-18

2 Claims



An elongated hollow expansion joint for the concrete decking of swimming pools, the top of the joint being flat and

the lower portions of the sidewalls converge to a point and form a V in cross section, the walls at the apex of the V being adapted to separate when joint is expanded by contraction of the decking. Lateral flanges project from the sidewalls intermediate their upper and lower edges, said flanges extending longitudinally of the joint and have grooved beads along their free longitudinal edges.

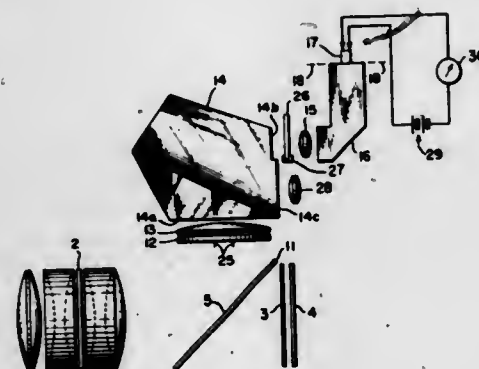
3,575,095 OPTICAL APPARATUS

Ludwig J. Keck, Boulder, Colo., assignor to Honeywell Inc., Minneapolis, Minn.

Filed Oct. 15, 1968, Ser. No. 767,711
Int. Cl. G01j 1/42; G03b 19/12

U.S. Cl. 95-10

5 Claims



A camera is provided with a behind-the-lens light value metering device. The metering device includes a photocell mounted behind a collector lens so as to be sensitive to only the value of light radiating from a predetermined smaller area within the object area to be photographed. A selectively positionable optical element is included in the metering device for dispersing light radiating from the object area, thereby to render the photocell sensitive to dispersed light radiating from the entire object area.

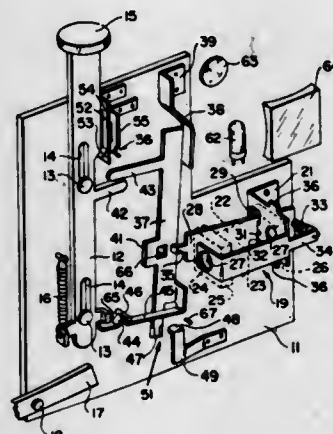
3,575,096 LOW LIGHT INDICATOR FOR CAMERAS

Paul Justin Ernise, Rochester, N.Y., assignor to Eastman Kodak Company, Rochester, N.Y.

Filed Jan. 10, 1969, Ser. No. 790,359
Int. Cl. G03b 17/18; G01j 1/44

U.S. Cl. 95-10

7 Claims



In a camera provided with a low light indicator system in which a sensitive relay armature is attractable by an electromagnet energized in proportion to scene brightness and thereby is caused to assume either of two positions depending on whether scene illumination is above or below a predetermined value, the armature is adapted when in one of its two positions to prevent opening of a switch which normally opens in response to movement of a camera operating member to thus energize an indicator lamp or the like when scene brightness is below such predetermined value.

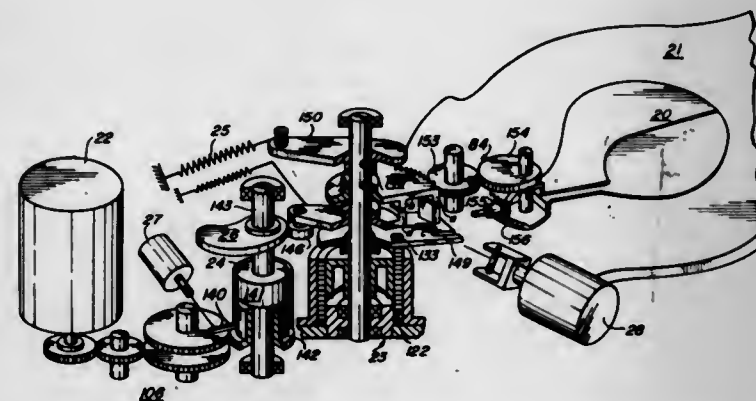
3,575,097 LARGE HIGH-SPEED BETWEEN-THE-LENS SHUTTERS

Frank J. Gonzalez, Morton Grove, Ill., assignor to Bourns/CAI, Inc.

Filed Feb. 11, 1969, Ser. No. 798,380
Int. Cl. G03b 9/26

U.S. Cl. 95-60

10 Claims



A pair of large, scissorlike shutter blades are arranged in tandem to operate through a four-step exposure cycle. Clutch and brake mechanisms cock, open, and stop the shutter motion. Both the clutch and brake include a pair of axially aligned drums with a coiled spring coaxially wrapped around them. The drums are not mechanically coupled with each other when the spring is relaxed, but they effectively become a single unit when the spring is wound up to grip the surfaces of the two aligned drums. This way one drum in the pair may be driven in the case of a clutch, or stopped in the case of a brake, by the other drum.

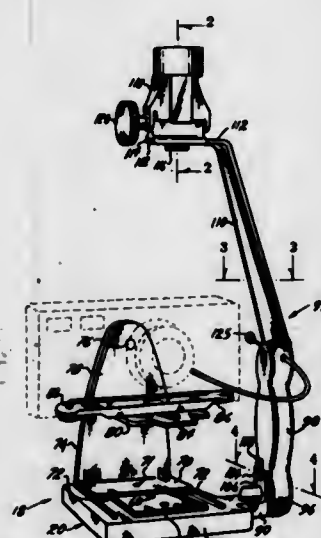
3,575,098 ADJUSTABLE CAMERA BRACKET

Richard B. Jones, 7035 Palm Ave., Highland, Calif. 92346

Filed Aug. 15, 1968, Ser. No. 752,887
Int. Cl. G03b 17/56, 15/03

U.S. Cl. 95-86

10 Claims



A flat normally horizontal, rectangular camera mounting base is supported manually by a single handle connected at its lower end to the outer end of a leftward extension of the base near the front end of the left edge of said base, said handle normally extending upright but being pivotally adjustable forwardly relative to said extension about a transverse horizontal axis. A flash unit supporting arm extends upwardly from the upper end of the handle at a slight inclination relative thereto to within a short distance of a vertical plane containing the optical axis of a camera mounted on said base. A short horizontal extension extends inwardly from the upper end of said arm, said extension being normal to said vertical plane and bisected thereby. A flash unit mounting screw is provided in said plane on said arm extension and secures to said extension a flasher unit support which is rockable about a horizontal axis normal to said plane.

A right-angled adapter bracket is optionally mountable on the base and pivotally supports an elevated right-angled auxiliary camera supporting platform whereby the latter with the camera fixed thereto may be rotated about the focal axis of the camera to any desired angle while taking a picture. To facilitate rapid assembly or disassembly on the camera mounting base of a camera or of the angular adapter bracket, an adapter slug is screwable onto each of the latter and is quickly engageable or disengageable by a novel spring biased clamp on the mounting base.

The base of the device has downwardly extending edgewise walls which, together with the lateral extension from the base for supporting the handle of the device, engage a flat surface on which the device is placed so as to support the device with the handle in upright position when placed on a table.

3,575,099

DENTAL X-RAY PROCESSING APPARATUS

Gerald Isaac Pasternak Levenson, and Andrew Green, Harrow, England, assignors to Eastman Kodak Company, Rochester, N.Y.

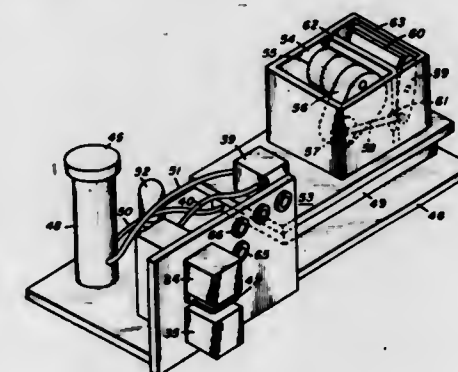
Filed Feb. 14, 1968, Ser. No. 705,329

Claims priority, application Great Britain, Feb. 16, 1967, 7409/67

Int. Cl. G03d 3/16

U.S. Cl. 95-89

5 Claims



An apparatus for processing film that injects fluid into a self-sealing package containing a photosensitive film, measures the distension of the package, terminates the flow of fluid into the package when the package has reached a predetermined size and agitates the package to cause the injected fluid to flow uniformly upon the film emulsion.

3,575,100

FILM DEVELOPING APPARATUS

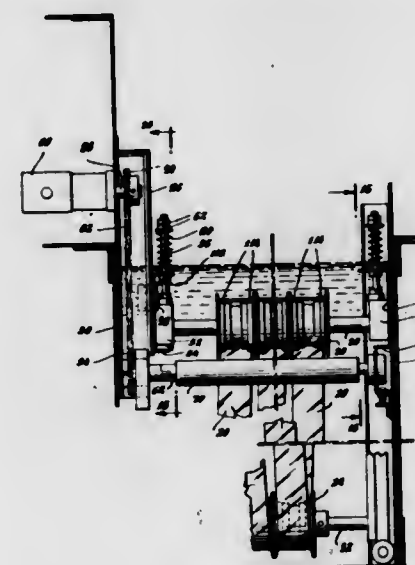
Edward B. Krause, 20 Meadow Wood Road, Trumbull, Conn.

Filed Nov. 27, 1967, Ser. No. 685,747

Int. Cl. G03d 3/14

U.S. Cl. 95-94

7 Claims



Automatic film developing apparatus for processing continuous length film, e.g. movie film. Film is pulled in a

helical path about a series of upper and lower freely rotatable guide spools mounted on upper and lower shafts. An auxiliary drive roll underlies the peripheries of the spools on the upper shaft, which is resiliently biased upwardly. When the film tension reaches some preselected value, the upper spools are pulled down into driving engagement with the auxiliary drive rolls, thus reducing the tension. One end of certain upper shafts may be blocked from vertical movement to provide smoother operation under certain conditions.

3,575,101

METHOD AND APPARATUS FOR PROCESSING PHOTOGRAPHIC MATERIAL

Eric Thomas Smith, Eastleigh, and John Gerald Howe, Chesham, England, assignors to Eastman Kodak Company, Rochester, N.Y.

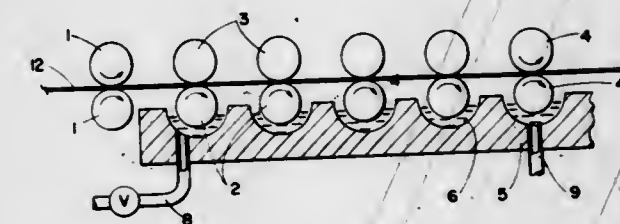
Filed Aug. 26, 1968, Ser. No. 755,103

Claims priority, application Great Britain, Sept. 1, 1967, 40109/67

Int. Cl. G03d 3/12

U.S. Cl. 95-94

7 Claims



A method and apparatus for processing photographic material of the scavenger type where the used processing solution runs to waste. The direction and rate of flow of processing solution through any processing stage is the same as the direction and speed of the sensitized material transport through that stage, so that each part of the emulsion surface meets fresh solution in the first part of the processing stage and processing is continued with the same solution in the remaining parts of the processing stage. In this way processing is the same whether a long length or a single sheet of photographic material is processed.

3,575,102

TOASTER OPERABLE FROM END OR SIDE

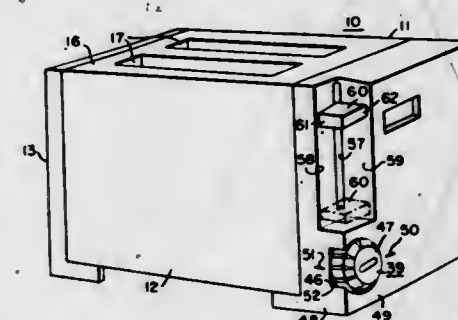
Bernard F. Parr, Mansfield, Ohio, assignor to Westinghouse Electric Corporation, Pittsburgh, Pa.

Filed Mar. 17, 1969, Ser. No. 807,748

Int. Cl. A47j 37/08

U.S. Cl. 99-391

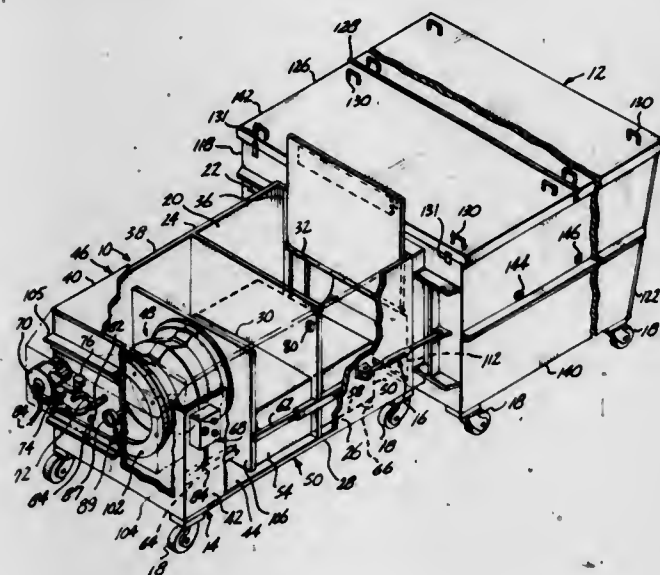
11 Claims



Control structure for an appliance which can be conveniently operated from either of two adjacent walls of the housing structure of the toaster. To this end, the control is provided with an actuator knob having adjacent surfaces, one of which lies in a plane parallel to one of the two adjacent walls mentioned above and the other of which lies in a plane parallel to the other of the two adjacent walls.

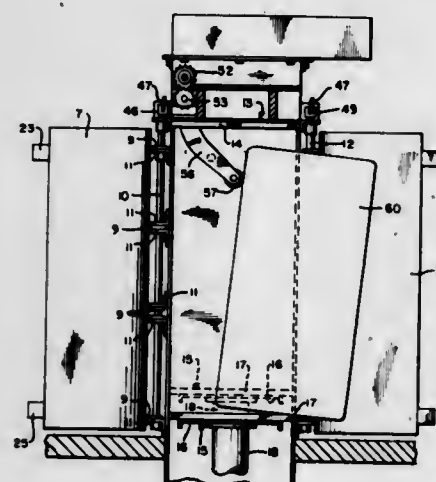
Automatic film developing apparatus for processing continuous length film, e.g. movie film. Film is pulled in a

3,575,103
REFUSE COMPACTION HANDLING EQUIPMENT
 UTILIZING FLUIDS UNDER LOW PRESSURE
 Ray E. Charles, 605 W. Mercer Place, Seattle, Wash. 98119
 Filed Aug. 19, 1968, Ser. No. 753,582
 Int. Cl. B30b 15/30
 U.S. Cl. 100—215



A reference structure is adapted to be held in a substantially fixed location while a movable, self supporting, fluid tight, structure is variably positioned and expanded, at least in part, to and from the reference structure to move a ram. The ram in turn enters a receiving chamber to contact and compress refuse therein and compressibly move the compacting refuse into a compaction chamber. The ram moves as both fluid pressure generating and regulating apparatus are operated to expand and then to retract the self-supporting fluid tight structure. Various stages of compression are undertaken, as necessary, when a variable position reactive compression plate or baffle is sequentially moved away from the receiving chamber to define different volume sizes of temporary subcompartments within the compaction chamber which often serves as an "on the spot" refuse container.

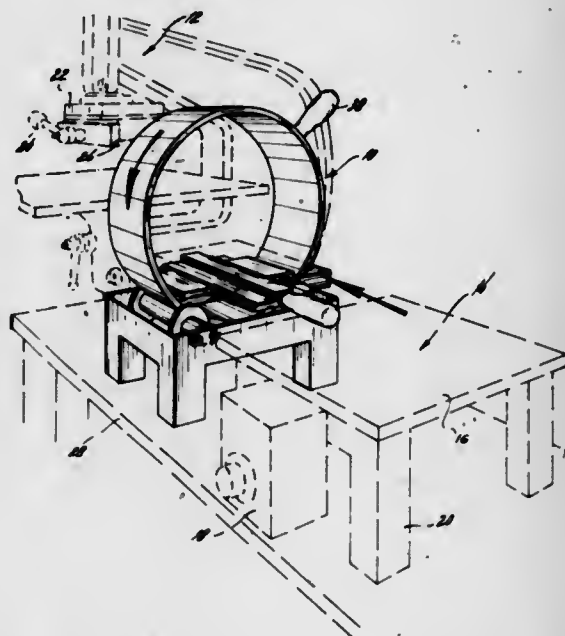
3,575,104
AUTOMATIC BALING PRESS
 Dominick M. Aluotto, Brooklyn, N.Y., assignor to Antonio, doing business as National Baling and Equipment Co. Aluotto, Brooklyn, N.Y.
 Filed Nov. 4, 1968, Ser. No. 773,183
 Int. Cl. B30b 15/32
 U.S. Cl. 100—218



Baling press arranged with a power-operated door on each side and a power-operated ejecting mechanism. Power-

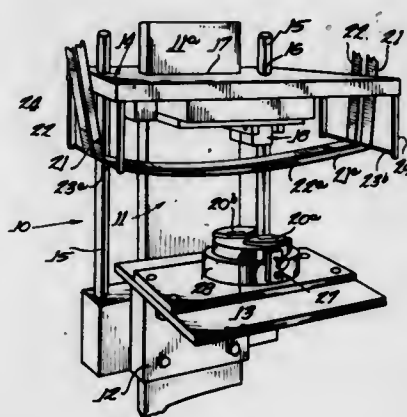
operated locks are provided for the doors and manual control for each power-operated mechanism.

3,575,105
TRANSFER ASSEMBLY
 Ralph Painter, Glendale, Ark., assignor to Arcoa Incorporated, Phoenix, Ariz.
 Filed July 23, 1969, Ser. No. 844,085
 Int. Cl. B65g 7/00
 U.S. Cl. 101—35



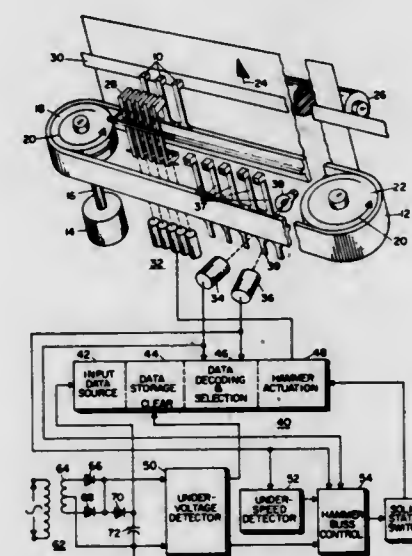
Transfer assemblies, particularly an assembly rotatable 180° to transfer an object from one horizontal plane to another horizontal plane, while inverting the object, the device including an open-ended cylinder having a miter bracket for slidably supporting the object to be transferred.

3,575,106
BED AND PLATEN PRINTER WITH RIBBON INKERS
 Harold T. Collins, and Don L. Shofner, Bartlesville, Okla., assignors to Phillips Petroleum Company
 Filed Nov. 25, 1968, Ser. No. 778,494
 Int. Cl. B41f 1/44, 17/14
 U.S. Cl. 101—41



A stamping apparatus is provided for use in forming a composite multicolored indicia on a workpiece. The apparatus utilizes a single die in combination with a plurality of transfer ribbons of different colors and a rotatably mounted workpiece-supporting member whereby a plurality of multicolor impressions can be simultaneously made on the supported workpieces.

3,575,107
UNDERSPEED AND UNDERVOLTAGE PROTECTION FOR PRINTER
 Earle B. McDowell, and Clifford M. Jones, Waynesboro, Va., assignors to General Electric Company
 Filed June 2, 1969, Ser. No. 829,574
 Int. Cl. B41j 9/38; H02h 3/28
 U.S. Cl. 101—93

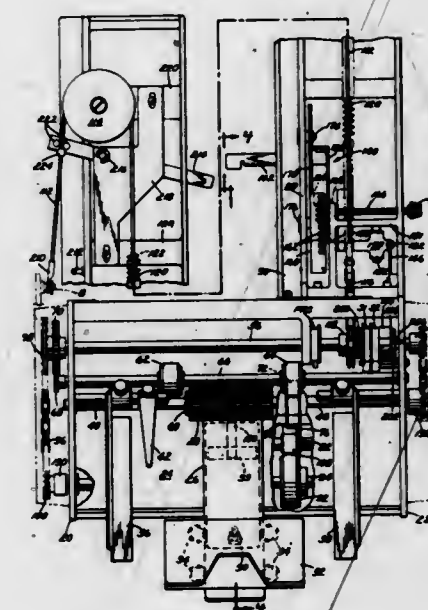


An underspeed and undervoltage protection system for an electromechanical printer. The printer includes a plurality of moving characters actuated by stationary print hammers. The speed of the moving characters is continuously monitored along with the input voltage to the printer system. A synchronizing signal is provided which indicates when the characters are positioned to permit application of buss voltage which is the source of energization of the print hammers. When the speed of the characters and the input voltage reach predetermined minimum values, power is applied to a power buss for energizing the print hammers, the application of power being delayed until the synchronizing signal indicates that the print hammers are not in position to be energized. Similarly, if the speed of the characters or the input voltage subsequently falls below the predetermined minimum values, the hammer power buss is synchronously deenergized so as to prevent damage to the printer mechanism.

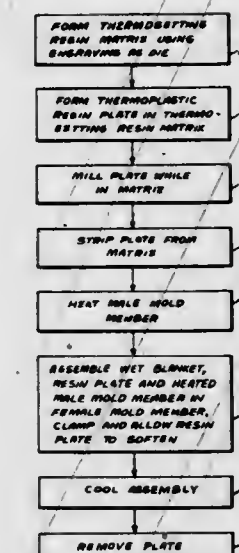
3,575,108
WORKPIECE FEEDING ATTACHMENT FOR A TRAVELING CYLINDER ADDRESSING MACHINE
 Robert J. Scranton, Mentor, Ohio, assignor to Addressograph-Multigraph Corporation, Cleveland, Ohio
 Filed Nov. 13, 1968, Ser. No. 775,342
 Int. Cl. B41i 47/46; B65h 5/02
 U.S. Cl. 101—56

A form feeding attachment for use with addressing machines or the like includes friction rollers for feeding a form from a supply stack to a preprint station, and a conveyor tape for advancing the form from the preprint station to a printing station of the machine where it is held by an automatically operated stop, and then to a receiving hopper. The friction rollers and the conveyor tape are intermittently driven in timed relation with the printing machine such that while a form is being imprinted at the printing station the conveyor tape is inactive and the friction rollers are driven to feed the next form in the stack to the preprint station. On completion of the printing operation, the friction rollers are inactivated and the conveyor tape is driven to advance the form from the printing station to the receiving hopper and the form at the preprint station to the printing station. Means are also provided for detecting the presence or absence of a form at the preprint station and, if the conditions of form presence or absence are not satisfied, the machine is shut down without loss of a printing operation

at the printing station. Self-regulating means are provided to adjust the timing of the form stopping and detecting means to accommodate slight differences in the machines to which the



3,575,109
SYNTHETIC RESIN PRINTING PLATE AND METHOD OF MAKING SAME
 Richard T. Wall, Westport, Conn., assignor to National Electrotape Co., Inc., New York, N.Y.
 Filed May 29, 1968, Ser. No. 732,947
 Int. Cl. B41n 1/22
 U.S. Cl. 101—401.1



A molded synthetic resin printing plate and method of making the same in which a matrix of a thermosetting synthetic resin first is formed using as a die the engraving of the matter to be printed. Next, a plate of thermoplastic synthetic resin is formed in the matrix under the action of heat and pressure. Before stripping of the plate and while the plate is still in the matrix, the back of the plate is milled to provide a plate having a thickness suitable for use on existing rotary printing press saddles. After milling, the plate is stripped from the mold and is assembled in a hemicylindrical female mold member with a heated hemicylindrical male mold member and a wet blanket and the mold is clamped. After a short period of time the entire assembly is cooled, the mold is disassembled and the plate is removed. In this way there is produced a synthetic resin printing plate conforming to the shape of the printing press saddle and from which plate high fidelity reproductions of the original can be printed directly. Because the plate conforms to the curvature

of the press saddle the tendency present in semiflexible flat plates to straighten is obviated. In this manner a hard surfaced, semiflexible plate can be attached to the printing press saddle conveniently and securely merely by using double-backed adhesive tape or spray glues.

3,575,110

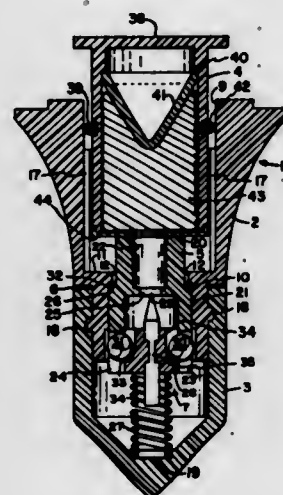
NONMETALLIC ANTI-PERSONNEL MINE

Kenneth Edwin Conroy, 18 Center Blvd., and Scott Lynn, 452 Roxborough Road, Ottawa, Ontario, Canada
Filed Sept. 4, 1962, Ser. No. 221,376

Claims priority, application Canada, Sept. 5, 1961, 831,066
Int. Cl. F42b 23/00

U.S. Cl. 102-8

1 Claim



A two-piece, antipersonnel mine adapted to be driven into the ground comprising, a cylindrical upper body, there being an upper axial bore and a lower axial bore in said upper body, said lower bore being of a smaller diameter than said upper bore; a lower tubular body detachably secured to said upper body, said upper body flaring outwardly towards its upper end and having an annular planer surface on its top face thereof, said lower body having its lower end tapering to a point; a cylindrical charge container axially slidable in said upper bore of said upper body, its upper end normally protruding above the upper face of said upper body; an explosive charge in said charge container; a detonator carrier axially slidable in said lower bore of said upper body and normally abutting said charge container; a detonator in said detonator carrier; a firing mechanism for detonating said detonator and said charge comprising, a firing pin carrier axially slidable in the lower portion of said detonator carrier; a pair of detent balls housed in said firing pin carrier and normally retained therein by the lower wall of said upper body; a firing pin fixed in axial relation in said firing pin carrier and a coil spring axially disposed in the lower portion of said lower body and normally biasing said firing pin carrier, said detonator carrier and said charge container in an upward direction in said mine, whereby when said charge container is depressed, said detonator carrier and said firing pin carrier are moved downwardly to release said balls from said firing pin carrier and into said lower portion of said lower body, whereby said coil spring will move said firing pin carrier upwardly to fire said detonator and said charge.

3,575,111

SIGNALING DEVICE HAVING MANUAL FIRING MEANS

Raymond L. Richardson, Bloomfield, Ind., assignor to the United States of America as represented by the Secretary of the Navy
Filed Apr. 28, 1969, Ser. No. 819,597

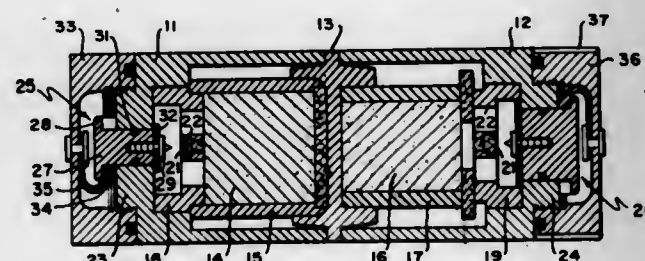
Int. Cl. F42b 13/44

U.S. Cl. 102-37.8

5 Claims

A pyrotechnic signal having a housing containing a quantity of pyrotechnic material and a primer for igniting said pyrotechnic material, a manually actuated striker assembly slidably attached to said housing having a firing pin

on the inner end thereof and a protective cap threadedly attached to said housing and having a safety clip attached



3,575,112

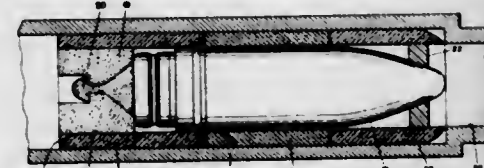
SEGMENTED PROPELLANT CHARGE FOR TELESCOPED CASELESS AMMUNITION

Leonard J. Farmer, Westgate Farms, Del., assignor to Hercules Incorporated, Wilmington, Del.
Filed Sept. 30, 1968, Ser. No. 763,872

Int. Cl. F42b 5/18

U.S. Cl. 102-38

6 Claims



A segmented propellant charge for telescoped caseless ammunition is provided. The propellant charge is prepared from at least two sections of molded propellant granules having differing burning rates. These sections are united in order of increasing burning rate to form the segmented propellant charge. The segmented propellant charge provides increased ballistic efficiency for telescoped caseless ammunition.

3,575,113

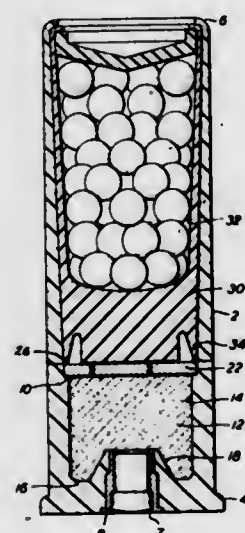
PROGRESSIVE BURN SHELL

Clifford Logan Ashbrook, 5027 Cheene, Houston, Tex., and Wilson Gordon Wing, 33 E. Rivercrest Drive, Houston, Tex. 77043
Filed Feb. 26, 1968, Ser. No. 708,223

Int. Cl. F42b 7/02, 7/08

U.S. Cl. 102-42

7 Claims



A shotgun shell designed to generate a lower and more extended pressure curve upon ignition of the powder. The shell consists of a conventional casing, primer and shot cup,

the latter being made of any of a number of configurations and materials. Disposed intermediate the primer end and in covering relation to the powder is a pressure plate that conforms to the cross-sectional shape of the casing interior. The pressure plate, in preferred form, contains a plurality of apertures so that upon application of a specified relatively low pressure, the surface area of the plate which the apertures define is caused to fracture, thus reducing the pressure in the powder chamber of the casing. As a result, the increasing kinetic energy generated by the continued burning of the powder (which is normally utilized to "initiate movement" of the static shop cup) may be applied toward the "acceleration" of the shop cup since the initial movement of the cup will have been initiated by the low-pressure force occurring upon fracturing of the plate.

3,575,114

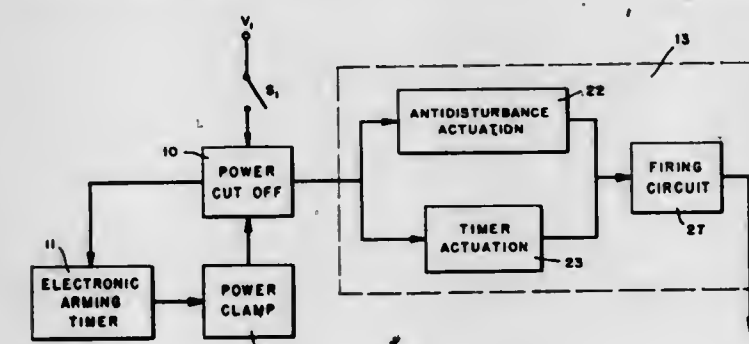
TIME DELAY ANTI-DISTURBANCE FAZE

Donald G. Quist; Robert H. Forster; Gaylon L. West; Harry C. Loyal, and Bernard M. Jones, China Lake, Calif., assignors to the United States of America, as represented by the Secretary of the Navy.
Filed Aug. 16, 1968, Ser. No. 753,260

Int. Cl. F42c 11/06

U.S. Cl. 102-70.2

7 Claims



A fuze having an electronic arming delay timer, an antisturbance firing mechanism, and a mechanical clock timer to detonate the fuze after a prescribed period of time if the antisturbance firing mechanism is not actuated.

3,575,115

STABILIZING SYSTEM FOR A GROUND EFFECT

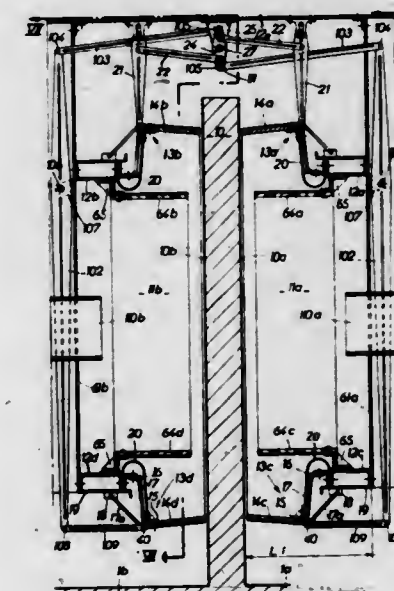
Francois Louis Giraud, Plaisir, France, assignor to Societe De L'Aerotraine, Paris, France
Filed July 5, 1968, Ser. No. 742,755

Claims priority, application France, Oct. 4, 1967, 123,279

Int. Cl. B60v 1/04

U.S. Cl. 104-23

10 Claims



In a ground effect machine such as a vehicle travelling along a track with the interposition of sustaining and guiding

cushions, the shifting of the machine out of its proper position with reference to the track is corrected not only by the fact that an increase in pressure in a cushion to one side of the machine and reduced leak on said side of the machine caused by the shifting towards said same side, produces a reduction in pressure of the cushion on the opposite side and consequently urges the machine back towards said opposite side, but to an increased extent when the objectionable shifting has reached a value above a predetermined threshold; this increased compensation is obtained by a mechanical or pneumatic connection between the cushions on the opposite sides of the machine, whereby the difference in pressure between the cushions is amplified.

3,575,116

GAS-CUSHION LOAD-SUPPORTING APPARATUS

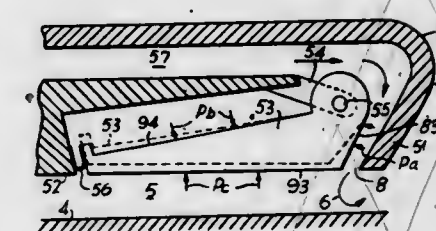
William Barrie Hart, Burwell, and Michael Charity, Marchwood, Southampton, England, assignors to Hovercraft Development Limited, London, England
Filed July 18, 1968, Ser. No. 745,863

Claims priority, application Great Britain, Aug. 3, 1967,

Int. Cl. B61b 13/08

U.S. Cl. 104-23

5 Claims



Gas cushion load supporting apparatus, particularly for a tracked air cushion vehicle, has nozzles for forming a gas curtain for containing the cushions. The nozzles are adjustable and controlled by actuating units responsive to local cushion pressure. When the cushion pressure increases locally the mass flow of curtain gas also increases locally. If the vehicle tends to roll the downgoing side of the cushion is stiffened which resists the rolling tendency.

3,575,117

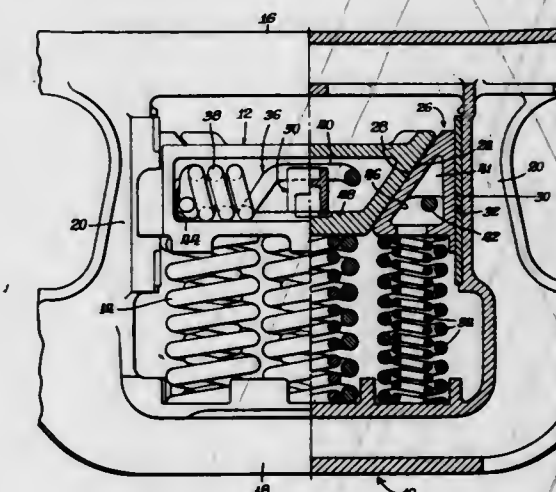
RAILWAY TRUCK BOLSTER SNUBBER

Carl E. Tack, Elmhurst, Ill., assignor to Amsted Industries Incorporated, Chicago, Ill.
Filed June 12, 1968, Ser. No. 736,420

Int. Cl. B61f 3/08, 5/06, 5/12

U.S. Cl. 105-197

13 Claims



A helical torsional spring is utilized to urge the friction shoes of a snubbing arrangement upwardly into the inclined bolster pockets in which the shoes are carried. A wedge between the bolster bottom wall and a U-shaped central portion of the spring is used to apply a torsional load on the spring.

3,575,118

MULTIPURPOSE RAILROAD CAR

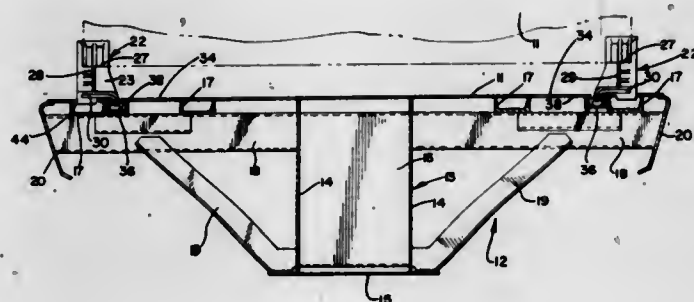
Harold E. Gramse, Chicago Heights, Ill., assignor to Pullman Incorporated, Chicago, Ill.

Filed Nov. 8, 1968, Ser. No. 774,272

Int. Cl. B65j 1/22; B60p 7/08

U.S. Cl. 105-366

8 Claims



A railway flatcar readily interchangeable for container and trailer-on-flatcar operation having a container bracket arrangement which is adjustable for supporting different length containers. The arrangement includes container corner-supporting brackets which are movable in slot structures in the deck to certain container support positions and which are stored in aperture structures to one side of the slot structures below the deck in inoperative position. The slot and aperture structures are constructed to conform to and combine with the conventional flatcar understructure.

3,575,119

ELECTRICAL ARC APPARATUS FOR DISINTEGRATING AND INCINERATING A SLURRY ORGANIC MATERIAL

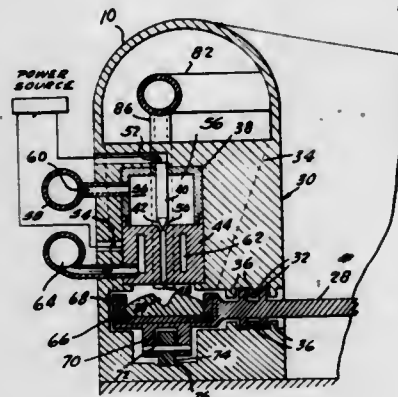
Andrew W. Marr, Jr., 325 Wheeler S.W., Ardmore, Okla.

Filed July 5, 1968, Ser. No. 742,804

Int. Cl. F23g 5/06, 5/10; H05b 7/18

U.S. Cl. 110-8

5 Claims



An apparatus for disintegrating and incinerating a concentrated slurry of solid organic material. The apparatus having an arcuate tunnel, a series of pairs of arc forming electrodes spaced along and mounted within said tunnel and electrical source means connected to each pair of said arc forming electrodes. Advancing means continuously to advance a layer of the organic material through the arcuate tunnel and consecutively into juxtaposition to the arcs formed between each of the pairs of arc electrodes wherein the temperature of that portion of said organic material in juxtaposition to each of said pairs of arc forming electrodes is abruptly raised to from about 2,000° F. to about 15,000° F., at which temperatures the bonds between the carbon and other atoms are dissolved, and means to maintain an oxidizing atmosphere within said tunnel.

3,575,120

BOUND BUTTONHOLE BINDING HOLDING TEMPLATE

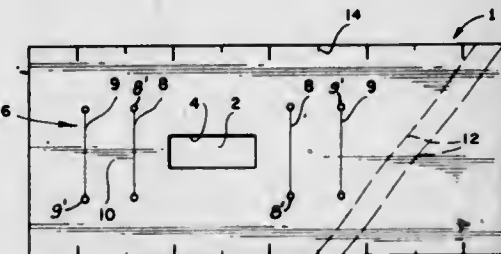
Patricia A. Paulson, La Jolla Fabrics 7719 Fay Ave., Poway, Calif., and Margaret J. Lahey, La Jolla, Calif., assignors to said Lahey assignor to said Paulson.

Filed Mar. 14, 1969, Ser. No. 807,278

Int. Cl. D05b 35/06

U.S. Cl. 112-136

7 Claims



Described herein is a combined template and binding holding apparatus made of a thin flexible material and defining an elongated rectangular opening near one longitudinal end and transverse parallel slits are spaced from each end of the opening and are oriented transverse to the opening. Portions between adjacent slits are elastically deflected, and binding tapes are inserted therein and are extended across the opening. The resilient portions hold the bindings firmly positioned across the opening as the outline of the opening is traced with a sewing machine needle.

3,575,121

SEWING MACHINE CONSTRUCTION

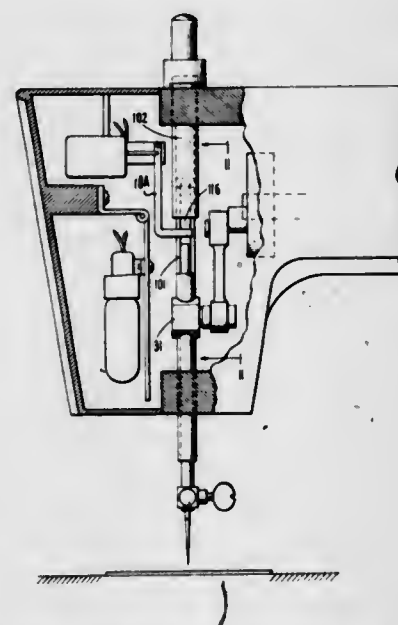
Felix J. Berube, 153 River St., Sanford, Mass. 04073

Continuation-in-part of application Ser. No. 722,522, Apr. 1, 1966, now Patent No. 3,471,325, dated Oct. 7, 1969, which is a continuation-in-part of application Ser. No. 668,283, Aug. 30, 1967, now abandoned, which is a continuation-in-part of application Ser. No. 432,642, Feb. 15, 1965, now abandoned. This application June 16, 1969, Ser. No. 844,708

Int. Cl. D05b 69/36

U.S. Cl. 112-221

5 Claims



A sewing machine having a mechanism for disengaging the needle bar of the machine from the drive mechanism when the needle carried by the needle bar hits an impenetrable object such as a button, zipper or piece of material. The disengaging mechanism of the preferred embodiment includes an elongated sleeve containing a needle bar tensioned to a fixed axial position within the sleeve by axially aligned spring means and other elements adapted to remain in the axial position under normal operating forces but adapted to permit the needle bar to move axially with respect to the sleeve upon application of abnormal forces when one of the elements is thrown out of normal position. In a modification the disengaging mechanism includes a collar surrounding the needle bar and carrying a spring tension ball

bearing adapted to move between a depression in the longitudinal groove in the needle bar. An electrically controlled breaking mechanism disengages the power source of the sewing machine when the needle bar is disengaged in either of the embodiments.

3,575,122

METHODS OF CONSTRUCTING A HATCH FRAME AND COVER THEREFOR

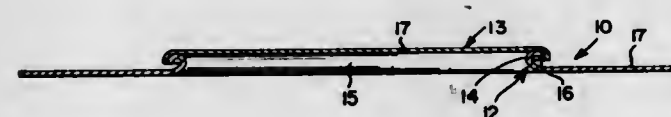
John A. Brossart, Jr., Munster, and William W. Lannin, Hammond, Ind., assignors to Stanray Corporation, Chicago, Ill.

Filed July 3, 1968, Ser. No. 750,404

Int. Cl. B21d 51/40

U.S. Cl. 113-116

9 Claims



Methods for forming hatch frames integral with a roof sheet for a car or container. In one embodiment the hatch frame is constructed so that the cutout portion forming the hatch opening is used to provide a hatch cover. Another embodiment includes the formation of a hatch frame and cover member, simultaneously with corrugations in the roof sheet.

3,575,123

MARINE STRUCTURE COATED WITH AN ACRYLIC INSOLUBLE WATER-SWELLABLE POLYMER

Thomas H. Shepherd, Hopewell, and Francis E. Gould, Princeton, N.J., assignors to National Patent Development Corporation, New York, N.Y.

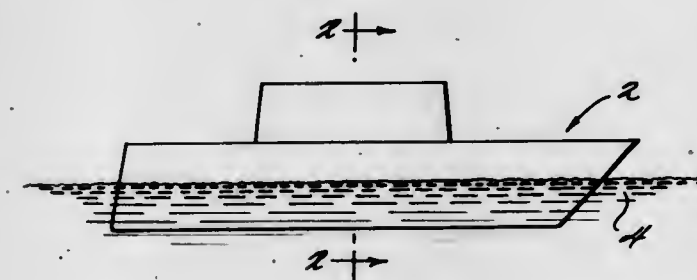
Continuation-in-part of application Ser. No. 654,044, July 5, 1967, and a continuation-in-part of 650,259, June 30, 1967, now abandoned, and a continuation-in-part of 567,856, July 26, 1966, now Patent No. 3,520,949, dated July 21, 1970.

This application July 1, 1969, Ser. No. 838,269

Int. Cl. C03c 17/00

U.S. Cl. 114-67R

22 Claims



Hydrophilic acrylic resins are applied to the underwater portion of boats to reduce the drag on moving the boats through water. The resins are useful in antifoulant compositions.

3,575,124

KICKUP RUDDER APPARATUS FOR BOATS

Hobard L. Alter, Laguna Beach, Calif., assignor to Coast Catamaran Corporation, Capistrano Beach, Calif.

Filed June 16, 1969, Ser. No. 833,569

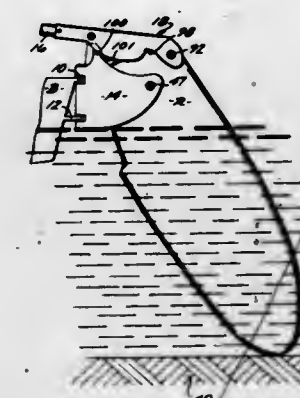
Int. Cl. B63h 25/06; B63b 39/06

U.S. Cl. 114-165

7 Claims

A kickup rudder apparatus for a boat to be sailed off a beach. The rudder is movable between a lowered position, a dangling intermediate position, and a raised position. As a boat is sailed onto a beach the rudder automatically kicks up from its lowered position into its dangling position when the rudder engages the ground. As the boat is sailed away from a beach the rudder may be moved from its raised position

through its intermediate position to its lowered position as it moves into deeper water. Control of rudder movement



between the three positions is effected solely through manipulation of the tiller.

3,575,125

SURFACE VEHICLE WITH WINGED AND COUNTERBALANCED OPERATOR'S STATION

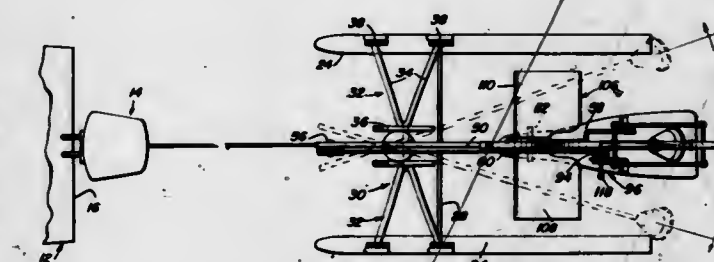
Aaron L. Welsh, 116 Smith Place, and Robert T. Cribb, 115 Smith Place, Warner Robins, Ga. 31093

Filed Apr. 25, 1969, Ser. No. 819,276

Int. Cl. B63b 21/00

U.S. Cl. 114-235

4 Claims



An elongated water planing assembly adapted to be pulled over and to plane upon the surface of a body of water and including an upwardly projecting support structure from whose upper end an elongated beam is supported for swinging in a vertical plane about a horizontal axis extending transversely of the support structure and the beam intermediate the opposite ends of the latter. The beam includes occupant supporting structure on its trailing end and an expansion spring is secured between its forward end and a lower portion of the support structure for counterbalancing the weight of the occupant on the trailing end of the beam. Further, the occupant-supporting structure at the trailing end of the beam includes a control for remotely adjusting the effective tension of the expansion spring.

3,575,126

AMPHIBIOUS VEHICLE

Viljo Kalevi Karvonen, Lynn, Mass. (14 Falmouth Ave. Scarborough, Ontario, Canada)

Filed Dec. 16, 1968, Ser. No. 784,546

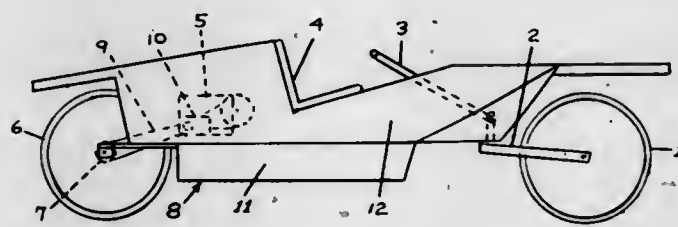
Int. Cl. B63f 3/00

U.S. Cl. 115-1

3 Claims

A surface vehicle for traveling on land or water with high-speed capability on both land and water. The vehicle has two cylindrical buoyant barrels mounted at either end of substantial buoyancy billets. The motion of the barrels is about a horizontal axis perpendicular to the direction of motion of the vehicle. Both front and rear barrels have paddles on their surface. The paddles on the rear motor-driven barrel provide propulsion in the water and the paddles on the front barrel encourage it to roll on the water at high speeds. The barrels have raised rims for travel on land so that the paddles are not damaged. The front barrel has the further capability of turning about an axis perpendicular to its direction of rotation to provide steering in water and land.

The fixed rims on both front and rear barrels are capable of differential motion relative to each other to facilitate turning on hard surfaces. The buoyancy billets between the barrels are arranged to control the depth of immersion of the barrels and consequently to insure efficient thrust from the paddles



and to assist in carrying larger water-borne loads which if dependent solely on the buoyant barrels would cause the barrels to be immersed so deeply in the water as to render propulsive thrust from the paddles of the rear barrel very low because of dissipation of energy in vertical components of the paddle motion in the water.

3,575,127

VEHICLE PROPULSION SYSTEM

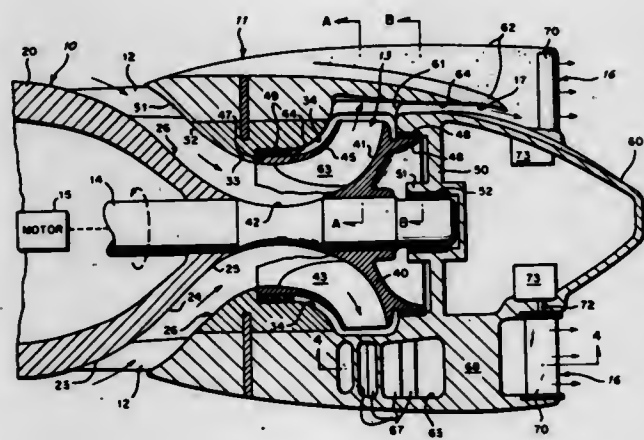
George F. Wislencus, and Maurice M. Sevik, State College, Pa., assignors to the United States of America, as represented by the Secretary of the Navy.

Filed May 19, 1969, Ser. No. 825,698

Int. Cl. B63h 11/00

U.S. Cl. 115-12

13 Claims



A propulsion system for fluid-submerged bodies, such as torpedoes or submarines, including a mixed flow impeller for increasing the energy of and for introducing radial and transverse direction components into a fluid flow directed therethrough and a pump casing connected by flow inlet vanes to the aft end of the submerged body which includes ducting terminating in exhaust openings having rotatable jet stream deflection cylinders for exhausting at least a major portion of the impeller exhaust to propel and steer the submerged body, and which may include ducting terminating in arcuately extending exhaust slots arranged between adjacent jet stream exhaust openings for exhausting a substantial portion of the flow to inhibit flow separation at the aft end of the pump casing.

3,575,128

COLOR CODED ROTATION-RATE INDICATOR

Stuart D. Pool, Wheaton, and Charles V. Everett, Warrenville, Ill., assignors to International Harvester Company, Chicago, Ill.

Filed Nov. 19, 1968, Ser. No. 776,950

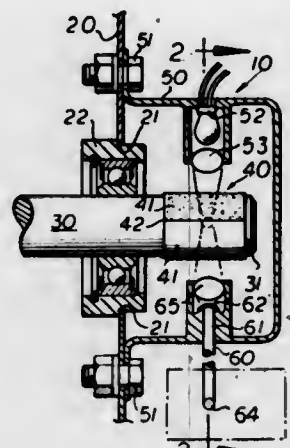
Int. Cl. B60q 1/54

U.S. Cl. 116-57

1 Claim

An apparatus for indicating to an operator the rotational rate of an element that is located remotely from the operator. A multicolored reflector is secured to the rotating element and a beam of light reflected off said multicolored reflector is

transmitted through a fiber optic cable to the operator's station. The operator can by observing the beam of light



emitted from the fiber optic cable ascertain the rotational rate of the element.

3,575,129

ROTATION MONITOR

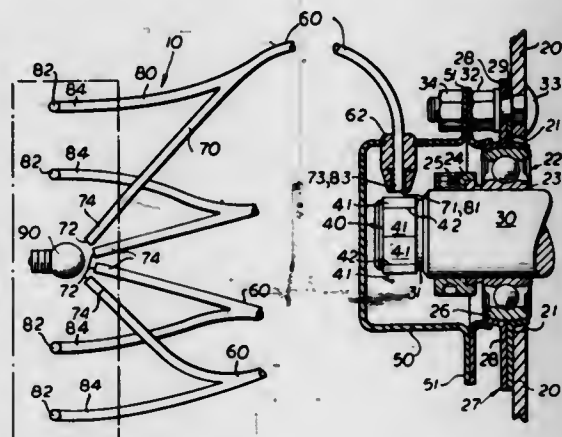
Herbert D. Sullivan, Chicago, Ill., assignor to International Harvester Company, Chicago, Ill.

Filed Dec. 4, 1968, Ser. No. 781,090

Int. Cl. B60q 1/54

U.S. Cl. 116-57

1 Claim



An apparatus for indicating to an operator the rotational rate of an element that is located remotely from the operator. A multicolored reflector is secured to the rotating element and a beam of light reflected off said multicolored reflector is transmitted through a fiber optic cable to the operator's station. The operator can by observing the beam of light emitted from the fiber optic cable ascertain the rotational rate of the element.

3,575,130

INDICATING MECHANISM

Conrad Altmann, Rochester, N.Y., assignor to Eastman Kodak Company, Rochester, N.Y.

Filed July 31, 1968, Ser. No. 749,144

Int. Cl. G01d 21/00

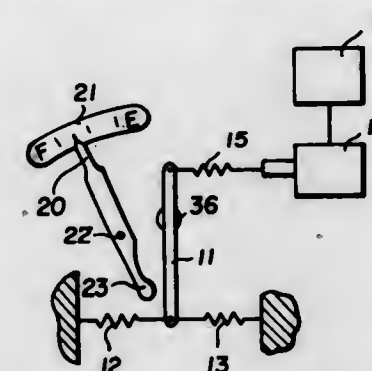
U.S. Cl. 116-114

10 Claims

A mechanism is disclosed for indicating when toner should be added to a toner reservoir in an electrographic machine. A blade positioned in the reservoir is urged in a direction which actuates a switch if toner in the reservoir offers less than a given amount of resistance to movement in that direction. When the level is low, resistance offered by the

toner is below the given amount and the switch is actuated indicating to an operator that toner should be added.

predetermined area on the surface of said material while said first area is disposed so as to receive additions of the coating



A mechanism is also disclosed in which the amount of movement of the blade is sensed and converted into a reading of the amount of toner in the reservoir.

3,575,131

APPARATUS FOR APPLYING BONDING MATERIAL TO ANNULAR SEALING SURFACES

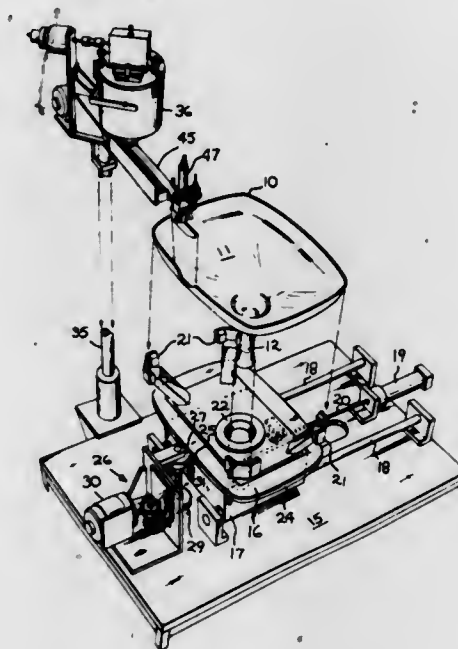
Larry John Lohmann, Toledo, Ohio, assignor to Owens-Illinois, Inc.

Filed May 8, 1968, Ser. No. 727,605

Int. Cl. B05c 5/00

U.S. Cl. 118-8

10 Claims



Coating apparatus for applying a uniform layer of extrudable bonding material onto an annular sealing surface of a hollow, glass part of the type suitable for fabricating cathode-ray, picture tube, envelopes. The layer is applied at a constant weight per lineal dimension in precisely centered location by minimized delivery nozzle movement during dispensing of the bonding material onto a nonsymmetrical sealing edge surface.

3,575,132

VAPOR DEPOSITION APPARATUS

Herbert H. Francisco, and Anthony P. Martocci, Bethlehem, Pa., assignors to Bethlehem Steel Corporation

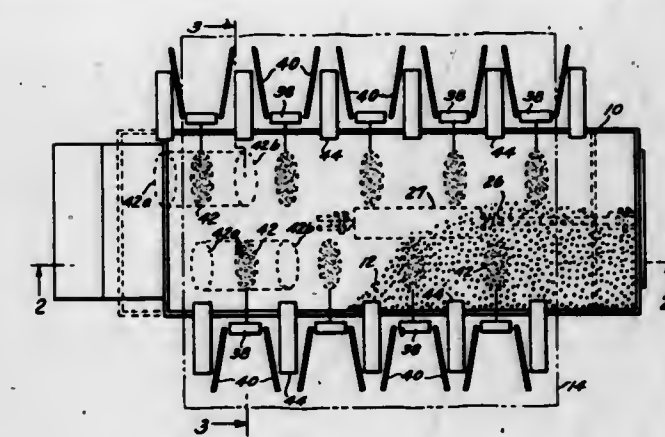
Filed Oct. 25, 1968, Ser. No. 770,503

Int. Cl. C23c 13/12

U.S. Cl. 118-49.5

1 Claim

A vacuum chamber contains a crucible of coating material disposed below the path of a moving substrate to be coated. A plurality of electron guns directs energy toward a first predetermined area on the surface of said material whereby the material within said area is vaporized. The crucible is then moved whereby said energy is directed toward a second



material from a plurality of material supply means disposed above said crucible.

3,575,133

APPARATUS FOR EVAPORATION BY LEVITATION IN AN ULTRAVACUUM

Jean Van Audenhove, Mol; Jean Joyeux, and Maurits Parenghe, Geel, Belgium, assignors to European Atomic Energy Community (Euratom), Brussels, Belgium

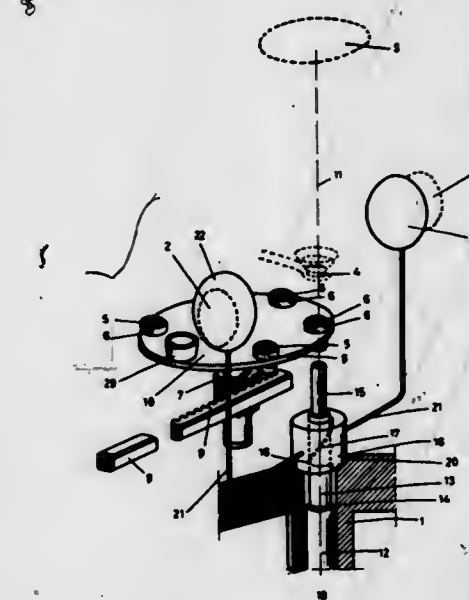
Filed Mar. 19, 1969, Ser. No. 808,580

Claims priority, application Belgium, Apr. 5, 1968, 56808

Int. Cl. C23c 13/12

U.S. Cl. 118-49.5

7 Claims



An apparatus for deposition of thin coatings on substitutes by evaporation of solid material in an ultravacuum. The apparatus has an inductor to effect levitation and heating of the material to be evaporated and a transfer device to bring a succession of such pieces into position. The transfer device is operable from the outside of the device by use of two bars which pass through seals in the wall of the device.

3,575,134

OPPOSED BLADE COATER

Richard J. Quint, Dixfield, Maine, assignor to Oxford Paper Company, Rumford, Maine

Filed Feb. 8, 1968, Ser. No. 703,924

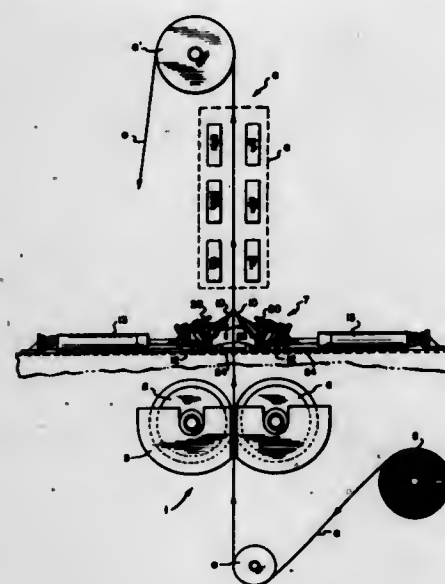
Int. Cl. B05c 11/02

U.S. Cl. 118-122

11 Claims

An opposed blade coating system for simultaneously coating the opposite sides of a paper web, the system including an applicator for applying coating material to the opposite sides of the web, a flexible blade unit comprised of a pair of blades having flat beveled working surfaces engaging

opposite sides of the coated web in opposed relationship with each other for metering the layer of coating on the opposite



sides of the web, and drying mechanism for thereafter drying the coated web.

3,575,135

LIQUID-APPLYING APPARATUS

John Wallace, Plymouth, Mich., assignor to Burroughs Corporation, Detroit, Mich.

Filed Feb. 24, 1969, Ser. No. 801,655

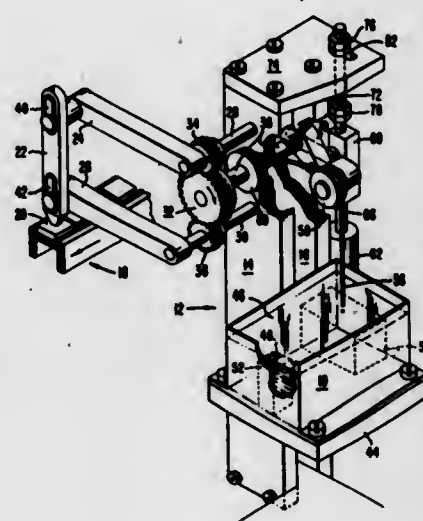
Int. Cl. B05c 1/02

U.S. Cl. 118-243

10 Claims

A liquid-applying apparatus for transferring a measured amount of liquid, such as liquid globule, from a body of such liquid stored in a receptacle to an object relatively remote from the receptacle. The apparatus finds particular usage on

production lines where it is desired to apply a small amount of liquid substance to each product undergoing fabrication as it steps along the line. The receptacle is provided with an interior catch basin or reservoir for holding a measured amount of liquid obtained from that stored in the receptacle. A dauber or applicator reciprocally moves between the receptacle and the production line in timed relation to the advancement of the products making contact at one end of its motion with the liquid in the catch basin to pick up the



liquid to be delivered and depositing at the other end of its motion the picked-up liquid on a product advancing along the production line. Provision is included for automatically raising and lowering the level of the liquid in the receptacle in synchronism with the transfer motion of the applicator and raising the liquid to fill the catch basin after each time the applicator leaves the receptacle and lowering the liquid level below the basin when the applicator returns to the receptacle for replenishment.

DESIGNS

APRIL 13, 1971

220,420

LAWN RAKE

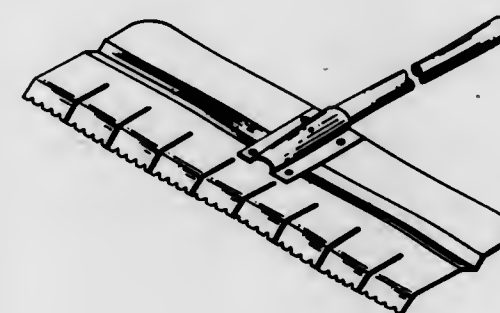
Samuel W. Rothwell, 5624 N. G St.,
Spokane, Wash.

Filed May 2, 1969, Ser. No. 16,987

Term of patent 14 years

Int. Cl. D8-01

U.S. Cl. D8-13



220,421

ADJUSTABLE EXTENSION GRIP

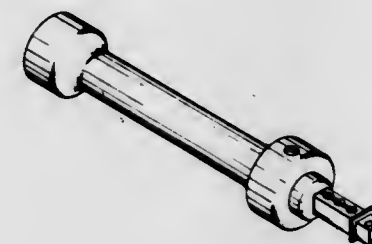
Daryl C. Zutter, 1203 Washington Ave.,
Toppenish, Wash. 98948

Filed Mar. 30, 1970, Ser. No. 22,084

Term of patent 14 years

Int. Cl. D8-02

U.S. Cl. D8-29



220,422

CAN OPENER OR THE LIKE

Thomas E. Hanson and William L. Wolfe, Syracuse, N.Y.,
assignors to Proctor-Silex Incorporated, Philadelphia, Pa.

Filed Apr. 9, 1970, Ser. No. 22,358

Term of patent 14 years

Int. Cl. D8-02

U.S. Cl. D8-36



220,423

SAFETY KEEPER PLATE

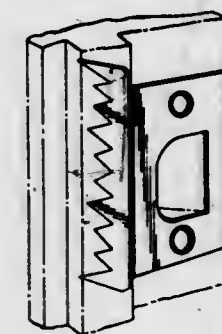
Thomas J. Dugan, P.O. Box 31356, 3019 N. Main St.,
Alhambra, Calif. 90031

Filed Sept. 24, 1969, Ser. No. 19,278

Term of patent 14 years

Int. Cl. D8-03

U.S. Cl. D8-117



220,424

GROUNDING CLIP

Eugene D. Hindenburg, Sycamore, Ill., assignor to
Holub Industries, Inc.

Filed Sept. 4, 1969, Ser. No. 18,995

Term of patent 14 years

Int. Cl. D8-03

U.S. Cl. D8-230



220,425

SHIPPING CONTAINER

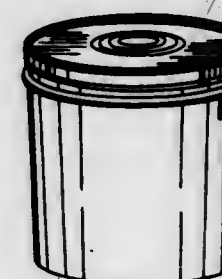
Ralph V. Bardell, Homewood, Ill., assignor to Bennett
Industries, Inc., Peotone, Ill.

Filed Jan. 9, 1969, Ser. No. 15,288

Term of patent 14 years

Int. Cl. D9-99

U.S. Cl. D9-216

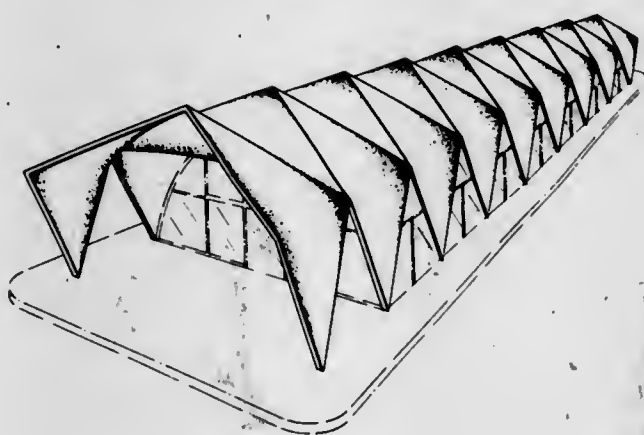


220,426
BUILDING SHELL

Lawrence A. Samuelson, Houston, Tex., assignor of fractional part interest to Michael D. Reifel, Houston, Tex.

Filed July 30, 1969, Ser. No. 18,463
Term of patent 14 years
Int. Cl. D25-04

U.S. Cl. D13-1



220,429
CHAIR

Dave Chapman, Chicago, Douglas W. Anderson, Palatine, and Andrew L. Alger, Wilmette, Ill., assignors to Dave Chapman, Goldsmith & Yamasaki, Inc., Chicago, Ill.

Filed Nov. 6, 1969, Ser. No. 19,969
Term of patent 14 years
Int. Cl. D6-01

U.S. Cl. D15-1

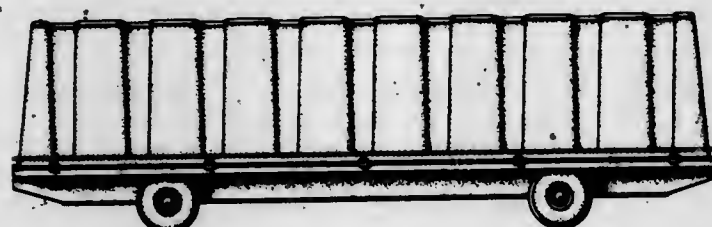


220,427
CARGO TRAILER

Arney C. Stensrud, Middletown, Ohio, assignor to TransporTrailer, Inc., Dayton, Ohio

Filed Mar. 20, 1970, Ser. No. 21,987
Term of patent 14 years
Int. Cl. D12-10

U.S. Cl. D14-3

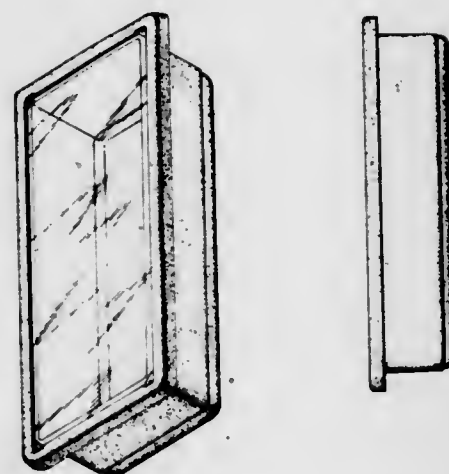


220,430
FIRE EXTINGUISHER CABINET

Richard A. Neumann, 510 13th Ave. NW., New Brighton, Minn. 55112

Filed Nov. 21, 1969, Ser. No. 20,223
Term of patent 14 years
Int. Cl. D29-01

U.S. Cl. D16-2



220,428
CHAIR

Dave Chapman, Chicago, and Kurt Mizen, Wilmette, Ill., assignors to Dave Chapman, Goldsmith & Yamasaki, Inc., Chicago, Ill.

Filed Nov. 3, 1969, Ser. No. 19,918
Term of patent 14 years
Int. Cl. D6-01

U.S. Cl. D15-1

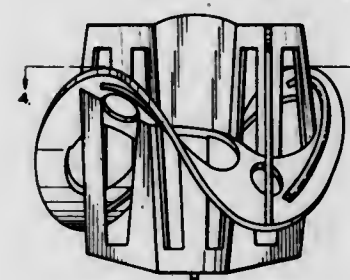
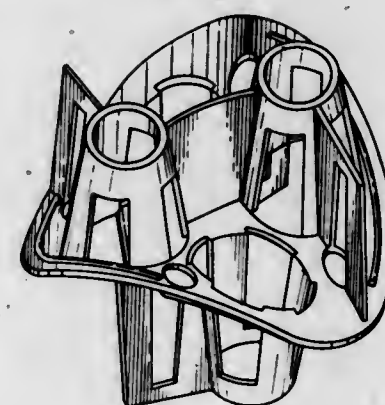


220,431
TOWER PACKING FOR CHEMICAL DISTILLATION APPARATUS AND THE LIKE

Frederick W. Arndt, Bay Village, Ohio, assignor to Hell Process Equipment Corp., Cleveland, Ohio

Filed Nov. 28, 1969, Ser. No. 20,304
Term of patent 14 years
Int. Cl. D24-02

U.S. Cl. D16-2

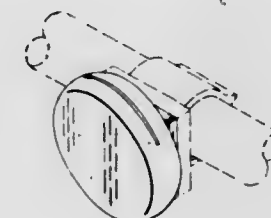


220,432
MAGNETIC PURSE FOR HOLDING FISHHOOKS OR SIMILAR ARTICLE

Lloyd J. Leroue, Rte. 2, P.O. Box 2360, Wapato, Wash. 98951

Filed June 27, 1969, Ser. No. 17,936
Term of patent 14 years
Int. Cl. D22-08

U.S. Cl. D22-23



220,433
DENTAL ARTICULATING PAPER APPLICATOR

Kenneth E. McVey, Paulsen Bldg., Spokane, Wash. 99201

Filed Nov. 28, 1969, Ser. No. 20,296
Term of patent 14 years
Int. Cl. D24-03

U.S. Cl. D24-1

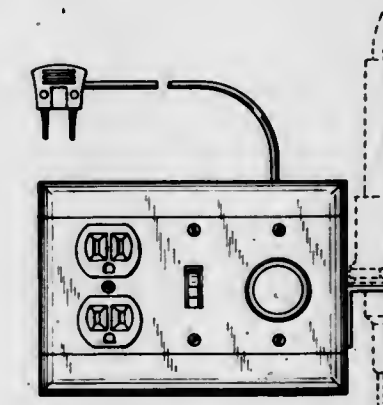


220,434
COMBINED TEMPERATURE CONTROL PANEL UNIT AND SUPPORT FOR SOLDERING IRONS AND THE LIKE

James C. Sewell, 4301 78th Ave. N., Brooklyn Park, Minn. 55429, and Gaylon T. Westlund, 2014 Emerson Ave. N., Minneapolis, Minn. 55411

Filed Feb. 17, 1969, Ser. No. 15,800
Term of patent 14 years
Int. Cl. D13-03; D8-03

U.S. Cl. D26-1

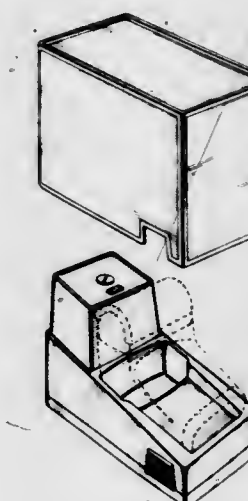


220,435
COMBINED STORAGE AND CHARGING CASE FOR AN ELECTRIC SHAVER

William J. Rakocy, Clifton, N.J., assignor to Ronson Corporation, Woodbridge, N.J.

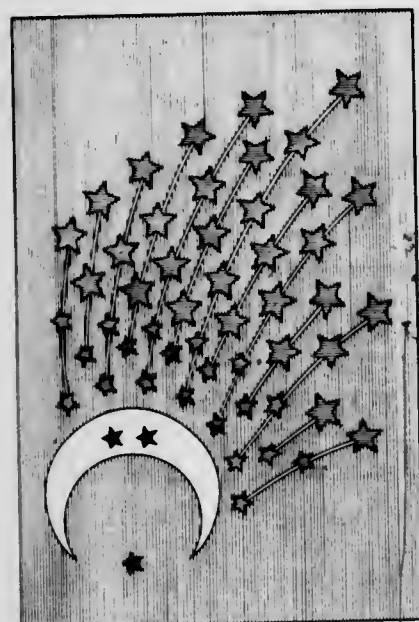
Filed Mar. 26, 1970, Ser. No. 22,060
Term of patent 14 years
Int. Cl. D13-02

U.S. Cl. D26-15



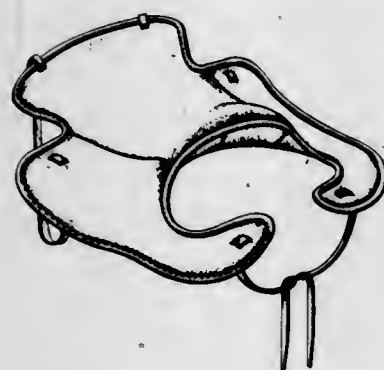
220,436
FLAG OR SIMILAR ARTICLE
 Edna Ruth Senteney, P.O. Box 460,
 Rio Dell, Calif. 95562
 Filed Feb. 20, 1970, Ser. No. 21,561
 Term of patent 14 years
 Int. Cl. D11—05

U.S. Cl. D29—17



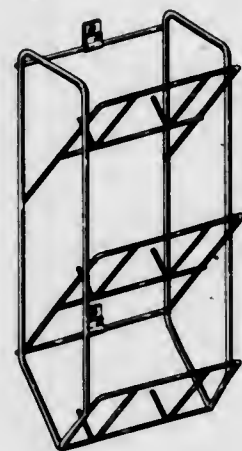
220,437
SADDLE SEAT
 John R. Roberts, Jr., P.O. Box 106,
 Buford, Ga. 23235
 Filed Nov. 17, 1969, Ser. No. 20,152
 Term of patent 14 years
 Int. Cl. D30—03

U.S. Cl. D30—20



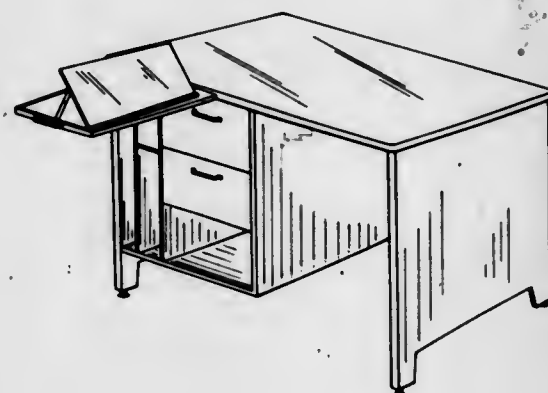
220,438
WALL-SUPPORTED RACK FOR BEVERAGE BOTTLE CARTONS
 Herman M. Gross, 83 S. Stewart Road,
 Mansfield, Ohio 44905
 Filed Feb. 18, 1970, Ser. No. 21,566
 Term of patent 14 years
 Int. Cl. D6—01

U.S. Cl. D33—3



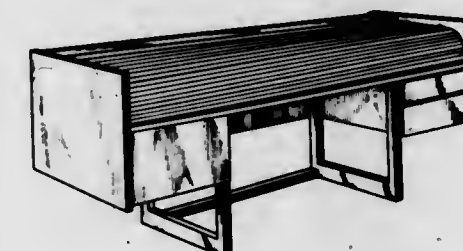
220,439
COMPUTER PROGRAMMER'S DESK
 Andrew Fromel, 65 Hoefler Ave., Ilion, N.Y. 13357
 Filed Dec. 8, 1969, Ser. No. 20,397
 Term of patent 7 years
 Int. Cl. D6—01

U.S. Cl. D33—7



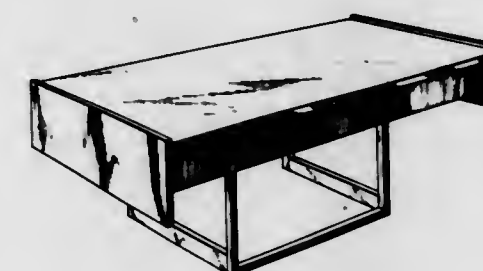
220,440
ROLL-TOP DESK
 Jack L. Beavers, Boulder, Colo., assignor to Design
 Products, Inc., Boulder, Colo.
 Filed Oct. 22, 1969, Ser. No. 19,665
 Term of patent 14 years
 Int. Cl. D6—01

U.S. Cl. D33—7



220,441
DESK
 Jack L. Beavers, Boulder, Colo., assignor to Design
 Products, Inc., Boulder, Colo.
 Filed Oct. 22, 1969, Ser. No. 19,674
 Term of patent 14 years
 Int. Cl. D6—01

U.S. Cl. D33—7



220,442
CREDENZA
 Jack L. Beavers, Boulder, Colo., assignor to Design
 Products, Inc., Boulder, Colo.
 Filed Oct. 22, 1969, Ser. No. 19,664
 Term of patent 14 years
 Int. Cl. D6—01

U.S. Cl. D33—13



220,443
TABLE
 Jack L. Beavers, Boulder, Colo., assignor to Design
 Products, Inc., Boulder, Colo.
 Filed Oct. 22, 1969, Ser. No. 19,666
 Term of patent 14 years
 Int. Cl. D6—01

U.S. Cl. D33—14



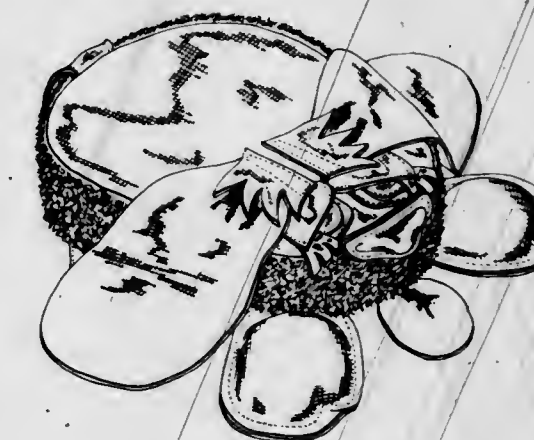
220,444
TOY WALRUS
 Jennifer Jenkins, Rte. 3, Caldwell, Idaho 83605
 Filed Jan. 9, 1970, Ser. No. 20,860
 Term of patent 14 years
 Int. Cl. D21—02

U.S. Cl. D34—2



220,445
TOY BEAGLE
 Jennifer Jenkins, Rte. 3, Caldwell, Idaho 83605
 Filed Jan. 9, 1970, Ser. No. 20,861
 Term of patent 14 years
 Int. Cl. D21—02

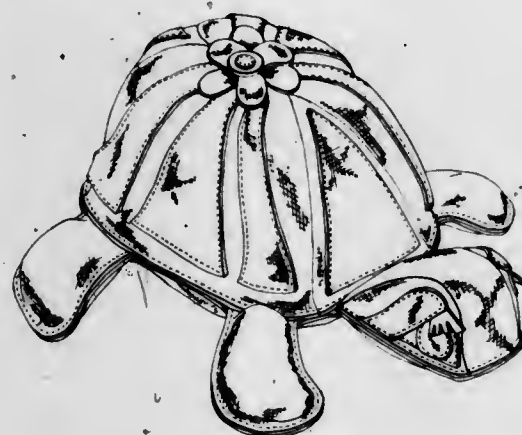
U.S. Cl. D34—2



**220,446
TOY TURTLE**

Jennifer Jenkins, Rte. 3, Caldwell, Idaho 83605
Filed Jan. 9, 1970, Ser. No. 20,862
Term of patent 14 years
Int. Cl. D21-02

U.S. Cl. D34-2

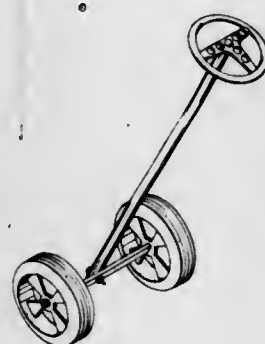


220,447

TRUNDLE TOY

Charles Bolstridge, 720 10th Ave. S.,
Nampa, Idaho 83651
Filed Apr. 9, 1970, Ser. No. 22,356
Term of patent 14 years
Int. Cl. D21-02

U.S. Cl. D34-15



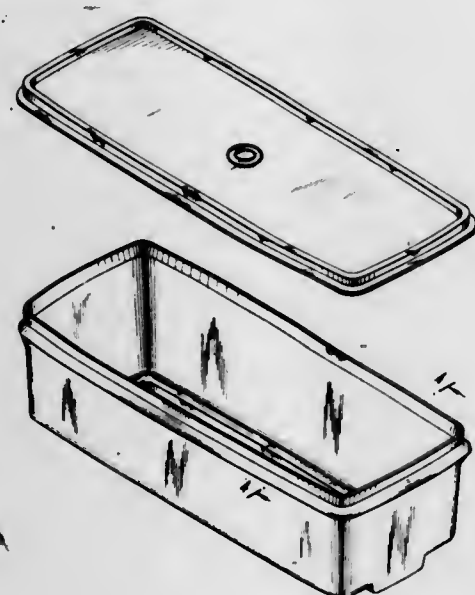
220,448

VEGETABLE CONTAINER OR THE LIKE

James B. Swett, Barrington, R.I., and Sidney Z. Smith,
Worcester, Mass., assignors to Dart Industries, Inc.,
Los Angeles, Calif.

Filed Jan. 28, 1970, Ser. No. 21,117
Term of patent 14 years
Int. Cl. D7-01

U.S. Cl. D44-1



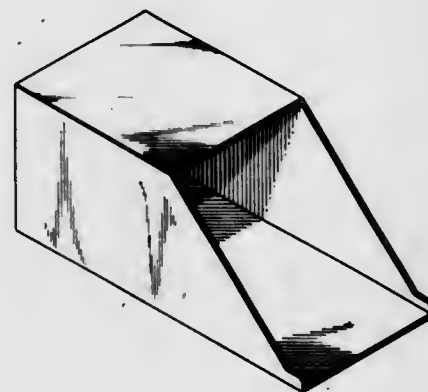
220,449

BREAD LOAF PROTECTOR

Jewell W. Davis, Box 361-X, Rte. 2, Pearland, Tex.
77581, and Robert M. Bish, 2112 Hackey, Houston,
Tex. 77023

Filed Oct. 8, 1969, Ser. No. 19,461
Term of patent 14 years
Int. Cl. D7-99

U.S. Cl. D44-6



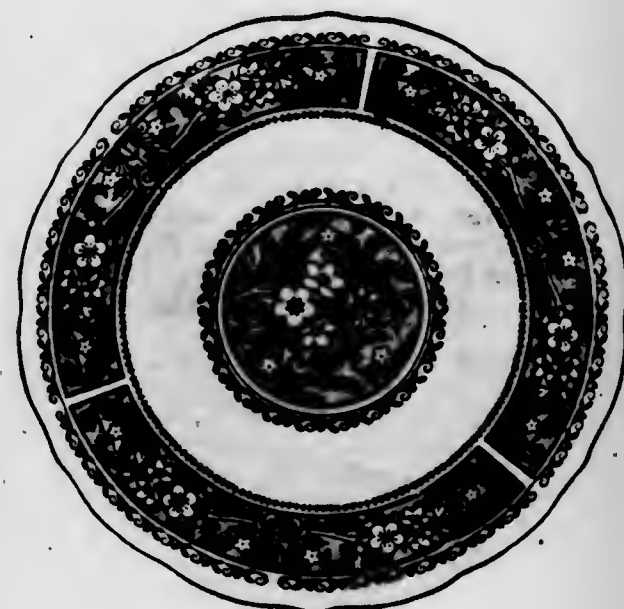
220,450

DINNER PLATE OR SIMILAR ARTICLE

Michael J. Szymanski, Camillus, N.Y., assignor to
Syracuse China Corporation, Syracuse, N.Y.

Filed Oct. 20, 1969, Ser. No. 19,614
Term of patent 14 years
Int. Cl. D7-01

U.S. Cl. D44-15



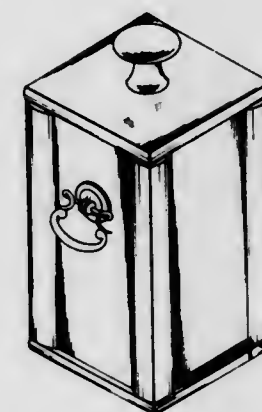
220,451

WASTE RECEPTACLE OR THE LIKE

Peter E. Norquest, 2001 Hervey,
Boise, Idaho 83705

Filed Feb. 25, 1970, Ser. No. 21,612
Term of patent 14 years
Int. Cl. D7-99

U.S. Cl. D49-35



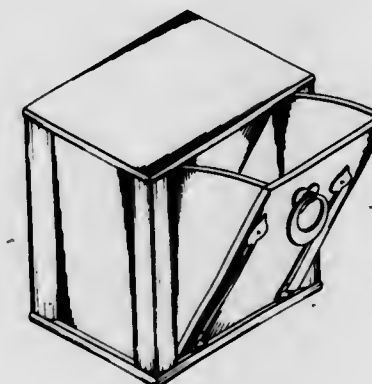
220,452

WASTE RECEPTACLE OR THE LIKE

Peter E. Norquest, 2001 Hervey,
Boise, Idaho 83705

Filed Feb. 25, 1970, Ser. No. 21,608
Term of patent 14 years
Int. Cl. D7-99

U.S. Cl. D49-35



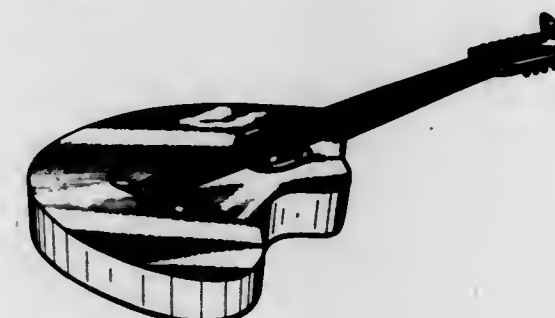
220,453

GUITAR

Paulo A. M. P. Nogueira, Sao Paulo, Brazil, assignor to
Tranguillo Giannini S.A. Industria de Instrumentos de
Cordas

Filed Aug. 26, 1969, Ser. No. 18,852
Claims priority, application Brazil Feb. 27, 1969
Term of patent 14 years
Int. Cl. D17-03

U.S. Cl. D56-1



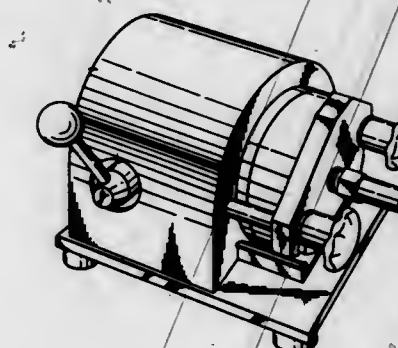
220,454

GENERATOR FOR COMPRESSING CARBON DIOXIDE

Edward M. Klopp, Seville, Ohio, assignor to The
Chemical Rubber Co., Cleveland, Ohio

Filed July 3, 1969, Ser. No. 18,052
Term of patent 14 years
Int. Cl. D15-10

U.S. Cl. D67-2



220,455

REFRIGERATOR CABINET

William C. Mason, Jefferson County, Ky., assignor to
General Electric Company

Filed Dec. 10, 1969, Ser. No. 20,428
Term of patent 7 years
Int. Cl. D15-11

U.S. Cl. D67-3



220,456

BOAT STANCHION

John Edie, 53 11th St., and Fred Burmann, 26 Arrow
Lane, both of Hicksville, N.Y. 11801

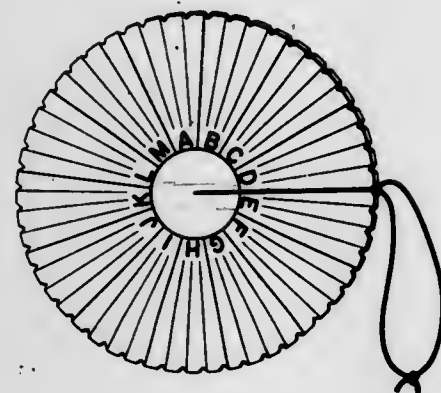
Filed Jan. 22, 1970, Ser. No. 21,036
Term of patent 14 years
Int. Cl. D12-14

U.S. Cl. D71-1



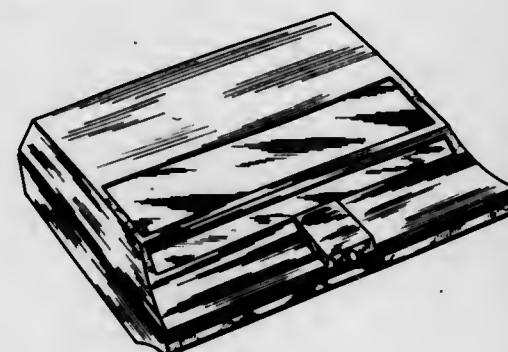
220,457
TELEPHONE NUMBER CHART
 John D. Karle, 320 Chestnut St.,
 Roselle Park, N.J. 07204
 Filed May 28, 1969, Ser. No. 17,399
 Term of patent 14 years
 Int. Cl. D19-02

U.S. Cl. D74-1



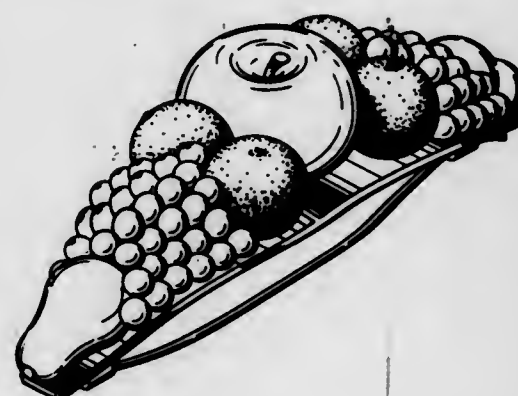
220,459
HEATER HOUSING FOR HAIR CURLERS
 Marvin W. Litman, Prairie Village, Kans., assignor to
 The Songrand Corporation
 Filed Jan. 16, 1970, Ser. No. 20,954
 Term of patent 14 years
 Int. Cl. D28-03

U.S. Cl. D86-10



220,460
HAIR BARRETTE
 Elise Evelyn Hawkins, Shaw University, Box 276,
 Raleigh, N.C. 27602
 Filed Mar. 30, 1970, Ser. No. 22,107
 Term of patent 14 years
 Int. Cl. D28-03

U.S. Cl. D86-10



220,458
MAILBOX
 Robert J. Notes, Adrian, Mich., assignor of fractional
 part interest to Lyle W. Roeder, Adrian, Mich.
 Filed July 7, 1969, Ser. No. 18,077
 Term of patent 14 years
 Int. Cl. D31

U.S. Cl. D74-9



220,461
COMBINED HANDBAG AND UMBRELLA HOLDER
 Leonard F. Soyka, 14 Devon Road,
 Great Neck, N.Y. 11023
 Filed Aug. 29, 1969, Ser. No. 18,922
 Term of patent 7 years
 Int. Cl. D3-02

U.S. Cl. D87-3



220,462
BEVERAGE DISPENSER
 William T. De Van and Ken Van Dyck, Weston, Conn.,
 assignors to Auberge Corporation, Westport, Conn.
 Filed Oct. 31, 1969, Ser. No. 19,871
 Term of patent 14 years
 Int. Cl. D7-99

U.S. Cl. D94-3



220,463
KNIFE
 James F. Pugh, Sr., 917 Carpenter St.,
 Azle, Tex. 76020
 Filed June 4, 1970, Ser. No. 23,304
 Term of patent 14 years
 Int. Cl. D7-03

U.S. Cl. D95-3



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PATENTS WERE ISSUED ON THE 13TH DAY OF APRIL, 1971

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Hipp, Richard D., Jr., to Minnesota Mining and Manufacturing Company. Frame useful as lens support. 3,574,444, Cl. 350-252.

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Friedrich, Leonard A.; and Hirakis, Emanuel C., 3,574,572.

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Hire, Charles H.; and Rhyn, Elmer J., to United States of America, Navy. Multiport extruding die. 3,574,889, Cl. 18-8.

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CLASSIFICATION OF PATENTS

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	3.574.800		3.574.558		3.575.084		3.574.286	18	: 3.574.258		3.574.458
	3.574.939		3.574.563		3.575.085		3.574.448		3.574.285		3.574.464
	3.574.942		3.574.576		3.575.094		3.574.467		3.574.311		3.574.466
2	: 3.575.105		3.574.580		3.575.095		3.574.470		3.574.374		3.574.486
	3.574.263		3.574.581		3.575.098		3.574.485		3.574.417		3.574.489
4	: 3.574.397		3.574.583		3.575.114		3.574.504		3.574.508		3.574.498
	3.574.408		3.574.639		3.575.120		3.574.770		3.574.829		3.574.616
	3.574.452		3.574.641		3.575.124	12	: 3.575.076		3.574.853		3.574.618
	3.574.476		3.574.655	8	: 3.574.533	13	: 3.574.523		3.574.874		3.574.647
	3.574.481		3.574.658		3.574.597		3.574.540		3.574.940		3.574.649
	3.574.815		3.574.679		3.574.683		3.574.993		3.574.977		3.574.851
	3.574.932		3.574.684		3.574.685		3.575.086		3.575.011		3.574.863
	3.575.046		3.574.696		3.574.866		3.575.125		3.575.065		3.574.895
	3.575.071		3.574.713		3.574.881	16	: 3.575.049		3.575.066		3.574.938
5	: 3.574.867		3.574.767		3.575.004	17	: 3.574.270		3.575.067		3.574.991
6	: 3.574.237		3.574.771		3.575.009		3.574.274		3.575.070		3.575.037
	3.574.243		3.574.781	9	: 3.574.236		3.574.291		3.575.111		3.575.050
	3.574.248		3.574.796		3.574.251		3.574.360		3.575.122		3.575.054
	3.574.260		3.574.805		3.574.394		3.574.362	19	: 3.574.320		3.575.077
	3.574.267		3.574.807		3.574.395		3.574.372		3.575.035		3.575.126
	3.574.268		3.574.862		3.574.483		3.574.380		3.575.052	26	: 3.574.253
	3.574.275		3.574.864		3.574.528		3.574.419	20	: 3.574.264		3.574.256
	3.574.292		3.574.880		3.574.546		3.574.506	21	: 3.574.240		3.574.269
	3.574.308		3.574.886		3.574.561		3.574.596		3.574.241		3.574.287
	3.574.313		3.574.889		3.574.570		3.574.603		3.574.254		3.574.288
	3.574.315		3.574.897		3.574.606		3.574.606		3.574.455		3.574.289
	3.574.343		3.574.914		3.574.572		3.574.640		3.575.021		3.574.297
	3.574.326		3.574.924		3.574.582		3.574.663		3.575.057		3.574.322
	3.574.334		3.574.928		3.574.650		3.574.712		3.575.068		3.574.325
	3.574.340		3.574.929		3.574.665		3.574.722	22	: 3.574.522		3.574.328
	3.574.347		3.574.933		3.574.697		3.574.723		3.574.719		3.574.332
	3.574.361		3.574.943		3.574.701		3.574.770		3.574.731		3.574.336
	3.574.364		3.574.957		3.574.756		3.574.790		3.574.782		3.574.344
	3.574.366		3.574.960		3.574.759		3.574.793		3.575.055		3.574.346
	3.574.375		3.574.964		3.574.798		3.574.868	23	: 3.575.121		3.574.358
	3.574.386		3.574.968		3.574.884		3.574.878		3.575.134		3.574.376
	3.574.388		3.574.969		3.574.927		3.574.899	24	: 3.574.538		3.574.414
	3.574.412		3.574.978		3.574.975		3.574.934		3.574.666		3.574.415
	3.574.435		3.574.979		3.574.996		3.574.936		3.574.694		3.574.429
	3.574.450		3.574.983		3.575.042		3.574.962		3.574.758		3.574.434
	3.574.460		3.574.985		3.575.043		3.574.984		3.574.799		3.574.468
	3.574.496		3.574.997		3.575.100		3.574.987		3.574.950		3.574.475
	3.574.501		3.575.010		3.575.109		3.575.000		3.574.955		3.574.643
	3.574.517		3.575.024	10	: 3.574.281		3.575.026		3.574.974		3.574.673
	3.574.541		3.575.031		3.574.542		3.575.059		3.575.014		3.574.689
	3.574.543		3.575.048		3.574.695		3.575.097	25	: 3.574.261		3.574.740
	3.574.544		3.575.053		3.575.117		3.574.777		3.574.262		3.574.774
	3.574.545		3.575.060		3.574.825		3.575.118		3.574.309		3.574.785
	3.574.549		3.575.080		3.575.112		3.575.128		3.574.438		3.574.817

PI 32 GEOGRAPHICAL INDEX OF RESIDENCE OF INVENTORS

26 : 3.574.820	34 : 3.574.609	36 : 3.574.525	39 : 3.574.378	42 : 3.574.279	48 : 3.574.387
3.574.830	3.574.613	3.574.536	3.574.385	3.574.280	3.574.398
3.574.847	3.574.617	3.574.552	3.574.391	3.574.303	3.574.404
3.574.855	3.574.659	3.574.562	3.574.396	3.574.343	3.574.446
3.574.859	3.574.664	3.574.574	3.574.413	3.574.406	3.574.457
3.574.865	3.574.667	3.574.577	3.574.425	3.574.411	3.574.463
3.574.892	3.574.680	3.574.578	3.574.426	3.574.474	3.574.547
3.574.902	3.574.698	3.574.584	3.574.427	3.574.478	3.574.599
3.574.911	3.574.699	3.574.614	3.574.428	3.574.484	3.574.644
3.574.930	3.574.705	3.574.615	3.574.447	3.574.499	3.574.661
3.574.958	3.574.710	3.574.619	3.574.451	3.574.503	3.574.672
3.574.971	3.574.724	3.574.620	3.574.482	3.574.505	3.574.681
3.575.033	3.574.733	3.574.622	3.574.493	3.574.509	3.574.700
3.575.061	3.574.744	3.574.623	3.574.510	3.574.519	3.574.703
3.575.062	3.574.745	3.574.624	3.574.565	3.574.550	3.574.727
3.575.088	3.574.753	3.574.625	3.574.566	3.574.551	3.574.768
3.575.135	3.574.761	3.574.627	3.574.588	3.574.555	3.574.794
27 : 3.574.302	3.574.769	3.574.628	3.574.589	3.574.585	3.574.806
3.574.422	3.574.772	3.574.629	3.574.590	3.574.586	3.574.871
3.574.444	3.574.778	3.574.630	3.574.605	3.574.598	3.574.921
3.574.495	3.574.795	3.574.634	3.574.608	3.574.601	3.574.945
3.574.518	3.574.811	3.574.638	3.574.653	3.574.610	3.574.966
3.574.595	3.574.822	3.574.645	3.574.662	3.574.611	3.575.005
3.574.636	3.574.823	3.574.657	3.574.671	3.574.646	3.575.092
3.574.791	3.574.826	3.574.660	3.574.674	3.574.670	3.575.113
3.574.981	3.574.827	3.574.675	3.574.678	3.574.739	49 : 3.574.306
3.575.006	3.574.834	3.574.676	3.574.693	3.574.742	3.574.869
3.575.063	3.574.836	3.574.692	3.574.702	3.574.752	3.574.949
28 : 3.574.300	3.574.839	3.574.707	3.574.784	3.574.760	3.574.965
3.574.407	3.574.841	3.574.738	3.574.789	3.574.788	51 : 3.574.278
3.574.422	3.574.842	3.574.747	3.574.856	3.574.809	3.574.283
3.574.512	3.574.849	3.574.797	3.574.882	3.574.838	3.574.338
3.574.593	3.574.858	3.574.831	3.574.888	3.574.844	3.574.462
3.574.526	3.574.876	3.574.832	3.574.891	3.574.845	3.574.757
3.574.534	3.574.923	3.574.860	3.574.916	3.574.846	3.574.824
3.574.559	3.574.948	3.574.877	3.574.922	3.574.857	3.574.952
3.574.591	3.575.007	3.574.878	3.574.937	3.574.861	3.575.107
3.574.632	3.575.018	3.574.909	3.574.944	3.574.873	53 : 3.574.477
3.574.633	3.575.020	3.574.918	3.574.973	3.574.906	3.574.531
3.574.635	3.575.039	3.574.920	3.574.976	3.574.919	3.574.532
3.574.652	3.575.058	3.574.959	3.574.986	3.574.935	3.574.612
3.574.746	3.575.093	3.574.992	3.574.998	3.575.003	3.574.872
3.574.833	3.575.123	3.575.013	3.575.032	3.575.019	54 : 3.575.103
3.575.030	35 : 3.574.654	3.575.075	3.575.073	3.575.028	3.574.765
3.575.047	36 : 3.574.276	3.575.081	3.575.102	3.575.034	55 : 3.574.238
3.575.091	3.574.298	3.575.082	3.575.108	3.575.036	3.574.242
31 : 3.574.637	3.574.301	3.575.087	3.575.131	3.575.051	3.574.246
32 : 3.574.299	3.574.350	3.575.096	3.575.127	3.575.127	3.574.304
3.574.569	3.574.351	3.575.104	3.575.132	3.575.132	3.574.330
3.574.600	3.574.359	3.575.130	3.574.720	3.574.273	3.574.431
34 : 3.574.244	3.574.365	3.574.249	3.574.808	3.574.354	3.574.490
3.574.356	3.574.379	3.574.711	3.574.828	3.574.520	3.574.642
3.574.439	3.574.421	3.574.803	3.574.898	3.575.078	3.574.668
3.574.461	3.574.433	3.574.995	3.575.106	3.575.804	3.574.669
3.574.494	3.574.436	3.574.259	3.575.119	3.574.961	3.574.755
3.574.530	3.574.437	3.574.317	3.574.381	3.574.968	3.574.963
3.574.553	3.574.445	3.574.318	3.574.529	3.574.977	3.575.008
3.574.575	3.574.449	3.574.337	3.574.556	3.574.548	3.575.012
3.574.592	3.574.469	3.574.339	3.574.885	3.574.972	3.575.056
3.574.593	3.574.471	3.574.352	3.574.980	48 : 3.574.265	3.575.090
3.574.594	3.574.507	3.574.369	3.575.069	3.574.290	56 : 3.574.319
3.574.604	3.574.521	3.574.370	3.574.252	3.574.363	3.574.329
3.574.607					

Design Patents

6 : 220.423	16 : 220.445	17 : 220.429	34 : 220.457	39 : 220.427	48 : 220.449
220.436	220.446	220.459	36 : 220.422	220.431	220.463
8 : 220.440	220.447	220.455	220.439	220.438	51 : 220.437
220.441	220.451	220.458	220.450	220.454	52 : 220.432
220.442	220.452	220.430	220.456	42 : 220.424	53 : 220.420
220.443	17 : 220.428	220.454	220.461	43 : 220.448	220.421
220.462		220.435	37 : 220.460	48 : 220.426	220.433
16 : 220.444					

Plant Patents

5 : 3.045	6 : 3.042	6 : 3.043	6 : 3.044	6 : 3.046	26 : 3.041
6 : 3.040					

U.S. GOVERNMENT PRINTING OFFICE: O-1971

OFFICIAL GAZETTE of the UNITED STATES PATENT OFFICE

April 20, 1971

Volume 885⁷

Number 3

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PATENT OFFICE NOTICES

Certificates of Correction for the Week of Apr. 20, 1971

3,338,832	3,530,214	3,544,577	3,552,720
3,373,111	3,530,957	3,544,581	3,552,909
3,439,166	3,531,442	3,545,686	3,553,003
3,471,103	3,532,549	3,545,723	3,553,438
3,471,240	3,532,653	3,545,871	3,553,467
3,473,411	3,533,553	3,546,132	3,553,681
3,478,322	3,533,831	3,546,643	3,554,138
3,481,927	3,534,144	3,547,541	3,554,265
3,484,506	3,534,580	3,547,651	3,554,281
3,489,483	3,534,719	3,547,891	3,554,821
3,489,763	3,535,055	3,547,893	3,554,907
3,492,199	3,535,983	3,547,972	3,555,030
3,492,669	3,536,025	3,548,162	3,555,327
3,497,870	3,538,136	3,548,459	3,555,334
3,505,276	3,538,578	3,548,880	3,555,501
3,511,655	3,538,703	3,548,998	3,555,585
3,520,910	3,538,750	3,549,376	3,556,128
3,521,638	3,539,386	3,549,416	3,556,252
3,522,283	3,539,887	3,549,548	3,557,046
3,524,632	3,540,088	3,549,559	3,557,857
3,525,465	3,540,227	3,549,733	3,557,868
3,525,778	3,540,913	3,549,875	3,558,643
3,525,794	3,540,976	3,550,073	3,560,401
3,526,645	3,541,547	3,550,347	3,560,549
3,526,655	3,541,785	3,550,690	
3,528,379	3,542,321	3,550,743	
3,528,536	3,544,409	3,550,926	
3,528,849	3,544,527	3,552,479	

Lapsed Patents

The following patents have lapsed under the provisions of 35 U.S.C. 151 for failure of payment of remaining balances of issue fees due therein:

3,495,248, issued Feb. 10, 1970.
3,499,131, issued Mar. 3, 1970.
3,515,053, issued June 2, 1970.

Disclaimers

3,105,003.—Edward N. Walsh, Chicago Heights, Ill. and James T. Hallett, Saratoga, Calif. PESTICIDAL PHOSPHORYLATED MERCAPTALS AND MERCAPTOLES. Patent dated Sept. 24, 1963. Disclaimer filed Dec. 21, 1970, by the assignee, Stauffer Chemical Company.

Hereby enters this disclaimer to claims 1, 2, 3, 6, 7, 8 and 10 of said patent.

424

3,119,590.—George J. Erikson, Morton Grove, Ill. ADJUSTABLE, COLLAPSIBLE, AND ARTICULATED BRACKET FOR SUPPORTING A CONCRETE FORM FOR A BRIDGE FASCIA. Patent dated Jan. 28, 1964. Disclaimer filed Dec. 7, 1970, by the assignee, Superior Concrete Accessories, Inc.

Hereby enters this disclaimer to claim 1 of said patent.

3,385,879.—Karoly Szabo, Orinda, and Thomas B. Williamson, Santa Clara, Calif. THIOALKYL PHENYL CARBONATES. Patent dated May 28, 1968. Disclaimer filed Dec. 21, 1970, by the assignee, Stauffer Chemical Company.

Hereby enters this disclaimer to claims 1, 2, 3 and 5 of said patent.

3,432,554.—John Peters, Saltcoats, and James Grigor, Coatbridge, Scotland. 2,2-BIS(DIFLUOROAMINO)-ALKANES BY REACTING ALIPHATIC KETONE WITH DIFLUORAMINE AND BF₃. Patent dated Mar. 11, 1969. Disclaimer filed Jan. 19, 1971, by the assignee, United States of America as represented by the Secretary of the Navy.

Hereby enters this disclaimer to claims 6 to 10 of said patent.

3,510,503.—Mervin E. Brokke, Richmond, and Thomas B. Williamson, Santa Clara, Calif. and George E. Lukes, deceased, late of El Cerrito, Calif., by Wayne C. Jaeschke, special administrator, Walnut Creek, Calif. TRIFLUOROBUTENYLTHIOCARBAMATES AND THIOCARBONATES. Patent dated May 5, 1970. Disclaimer filed Dec. 21, 1970, by the assignee, Stauffer Chemical Company.

Hereby enters this disclaimer to claims 1, 13, 14, 15, 16, 17 and 18 of said patent.

3,556,988.—William A. Stover, Woodbury, and Harry A. McVeigh, Gibbstown, N.J. METHOD OF PREPARING COMPOSITE CATALYST AND HYDROCARBON CONVERSION THEREWITH. Patent dated Jan. 19, 1971. Disclaimer filed Nov. 23, 1970, by the assignee, Mobil Oil Corporation.

Hereby disclaims the terminal portion of the term of said patent subsequent to Jan. 5, 1988.

Notice of Daylight Saving Time

The Patent Office will operate on Daylight Saving Time from April 25, 1971 through October 31, 1971.

PATENT EXAMINING CORPS

R. A. WAHL, Assistant Commissioner
F. H. BRONAUGH, Deputy Assistant Commissioner

CONDITION OF PATENT APPLICATIONS AS OF APRIL 6, 1971

PATENT EXAMINING GROUPS	Actual Filing Date of Oldest New Case Awaiting Action
CHEMICAL EXAMINING GROUPS	
GENERAL CHEMISTRY AND PETROLEUM CHEMISTRY, GROUP 110—M. STERMAN, Director..... Inorganic Compounds; Inorganic Compositions; Organo-Metal and Organo-Metalloid Chemistry; Metallurgy; Metal Stock; Electro Chemistry; Batteries; Hydrocarbons; Mineral Oil Technology; Lubricating Compositions; Gaseous Compositions; Fuel and Igniting Devices.	12-01-69
GENERAL ORGANIC CHEMISTRY, GROUP 120—I. MARCUS, Director..... Heterocyclic; Amides; Alkaloids; Azo; Sulfur; Misc. Esters; Carbohydrates; Herbicides; Poisons; Medicines; Cosmetics; Steroids; Oxo and Oxy; Quinones; Acids; Carboxylic Acid Esters; Acid Anhydrides; Acid Halides.	7-29-69
HIGH POLYMER CHEMISTRY, PLASTICS AND MOLDING, GROUP 140—L. J. BERCOVITZ, Director..... Synthetic Resins; Rubber; Proteins; Macromolecular Carbohydrates; Mixed Synthetic Resin Compositions; Synthetic Resins With Natural Polymers and Resins; Natural Resins; Reclaiming; Pore-Forming; Compositions (Part) e.g.: Coating; Molding; Ink; Adhesive and Abrading Compositions; Molding, Shaping, and Treating Processes.	1-08-70
COATING AND LAMINATING, BLEACHING, DYEING AND PHOTOGRAPHY, GROUP 160—A. P. KENT, Director..... Coating; Processes and Misc. Products; Laminating Methods and Apparatus; Stock Materials; Adhesive Bonding; Special Chemical Manufactures; Special Utility Compositions; Bleaching; Dyeing and Photography.	1-02-70
SPECIALIZED CHEMICAL INDUSTRIES AND CHEMICAL ENGINEERING, GROUP 170—W. B. KNIGHT, Director..... Fertilizers; Foods; Fermentation; Analytical Chemistry; Reactors; Sugar and Starch; Paper Making; Glass Manufacture; Gas; Heating and Illuminating; Cleaning Processes; Liquid Purification; Distillation; Preserving; Liquid and Solid Separation; Gas and Liquid Contact Apparatus; Refrigeration; Concentrative Evaporators; Mineral Oils Apparatus; Misc. Physical Processes.	10-03-69
ELECTRICAL EXAMINING GROUPS	
INDUSTRIAL ELECTRONICS AND RELATED ELEMENTS, GROUP 210—N. ANSHER, Director..... Generation and Utilization; General Applications; Conversion and Distribution; Heating and Related Art Conductors; Switches; Miscellaneous.	7-06-70
SECURITY, GROUP 220—R. L. CAMPBELL, Director..... Ordnance, Firearms and Ammunition; Radar, Underwater Signaling, Directional Radio, Torpedoes, Seismic Exploring, Radio-Active Batteries; Nuclear Reactors, Powder Metallurgy, Rocket Fuels; Radio-Active Material.	7-15-69
INFORMATION TRANSMISSION, STORAGE AND RETRIEVAL, GROUP 230—J. F. COUCH, Director..... Communications; Multiplexing Techniques; Facsimile; Data Processing, Computation and Conversion; Storage Devices and Related Arts.	1-02-70
ELECTRONIC COMPONENT SYSTEMS AND DEVICES, GROUP 250—W. L. CARLSON, Director..... Semi-Conductor and Space Discharge Systems and Devices; Electronic Component Circuits; Wave Transmission Lines and Networks; Optics-Radiant Energy; Measuring.	2-06-70
PHYSICS, GROUP 280—R. L. EVANS, Director..... Photography; Sound and Lighting; Indicators and Optics; Measuring and Testing; Geometrical Instruments.	12-23-70
DESIGNS, GROUP 290—R. L. CAMPBELL, Director..... Industrial Arts; Household, Personal and Fine Arts.	5-22-70
MECHANICAL EXAMINING GROUPS	
HANDLING AND TRANSPORTING MEDIA, GROUP 310—A. BERLIN, Director..... Conveyors; Hoists; Elevators; Article Handling Implements; Store Sevice; Sheet and Web Feeding; Dispensing; Fluid Sprinkling; Fire Extinguishers; Coin Handling; Check Controlled Apparatus; Classifying and Assorting Solids; Boats; Ships; Aeronautics; Motor and Land Vehicles and Appurtenances; Railways and Railway Equipment; Brakes; Rigid Flexible and Special Receptacles and Packages.	1-15-70
MATERIAL SHAPING, ARTICLE MANUFACTURING, TOOLS, GROUP 320—D. J. STOCKING, Director..... Manufacturing Processes, Assembling, Combined Machines, Special Article Making; Metal Deforming; Sheet Metal and Wire Working; Metal Fusion—Bonding, Metal Founding; Metallurgical Apparatus; Plastics Working Apparatus; Plastic Block and Earthenware Apparatus; Machine Tools for Shaping or Dividing; Work and Tool Holders Woodworking; Tools; Cutlery; Jacks.	12-01-69
AMUSEMENT, HUSBANDRY, PERSONAL TREATMENT, INFORMATION, GROUP 330—A. RUEGG, Director..... Amusement and Exercising Devices; Projectors; Animal and Plant Husbandry; Butchering; Earth Working and Excavating; Fishing, etc.; Tobacco; Artificial Body Members; Dentistry; Jewelry; Surgery; Toiletory; Printing; Typewriters; Stationery; Information Dissemination.	1-02-70
HEAT, POWER AND FLUID ENGINEERING, GROUP 340—C. F. GAREAU, Director..... Power Plants; Combustion Engines; Fluid Motors; Pumps; Turbines; Heat Generation and Exchange; Refrigeration; Ventilation; Drying; Vaporizing; Temperature and Humidity Regulation; Machine Elements; Power Transmission; Fluid Handling; Lubrication; Joint Packing.	4-24-70
CONSTRUCTIONS, SUPPORTS, TEXTILES, CLEANING, GROUP 350—T. J. HICKEY, Director..... Joints; Fasteners; Rod, Pipe and Electrical Connectors; Miscellaneous Hardware; Locks; Building Structures; Closure Operators; Bridges; Closures; Earth Engineering; Drilling; Mining; Furniture; Receptacles; Supports; Cabinet Structures; Centrifugal Separations; Cleaning; Coating; Pressing; Agitating; Foods; Textiles; Apparel and Shoes; Sewing Machines; Winding and Reeling.	1-06-70

Expiration of patents: The patents within the range of numbers indicated below expire during April 1971, except those which may have expired earlier due to shortened terms under the provisions of Public Law 600, 70th Congress, approved August 8, 1946 (60 Stat. 940) and Public Law 619, 83rd Congress, approved August 23, 1954 (68 Stat. 764), or which may have had their terms curtailed by disclaimer under the provisions of 35 U.S.C. 253. Other patents, issued after the dates of the range of numbers indicated below, may have expired before the full term of 17 years for the same reasons, or have lapsed under the provisions of 35 U.S.C. 151.

Patents..... Numbers 2,673,978 to 2,677,128, inclusive
Plant Patents..... Numbers 1,267 to 1,273, inclusive

REISSUES

APRIL 20, 1971

Matter enclosed in heavy brackets [] appears in the original patent but forms no part of this reissue specification; matter printed in italics indicates additions made by reissue.

27,115

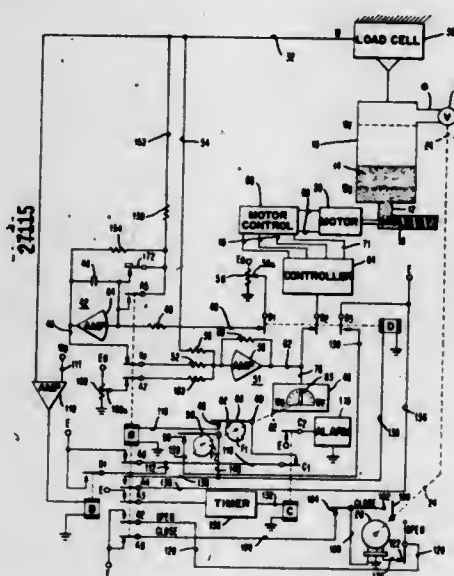
MASS-FLOW RATE CONTROL

Kenneth W. Goff, Abington, Pa., and Suresh C. Gupta, Sashthamangalam, Trivandrum, Kerala, India, assignors to Leeds & Northrup Company
Original No. 3,329,311, dated July 4, 1967, Ser. No. 509,052, Nov. 22, 1965. Application for reissue July 2, 1968, Ser. No. 748,574

Int. Cl. B65d 5/08

U.S. Cl. 222-58

3 Claims



A constant decreasing set point for the mass in a container is established by an integrating amplifier having a preset constant input signal. The existing mass in the container is measured by a load cell and the measured value is compared with the changing set point. Any difference resulting from the comparison provides an error signal for controlling the discharge of material from the container so as to maintain the desired constant discharge rate. When the mass in the container is reduced to a minimum, rapid refilling is initiated and the discharge during refill is maintained constant at the value existing before refill was initiated. When refill is completed or after a fixed time sufficient for refill has elapsed, the controlled discharge is resumed without a bump since the capacitor of the integrating amplifier is maintained at a discharge such that no error signal exists during refill.

27,116

PIEZOELECTRIC MULTIELEMENT DEVICE

Kenneth F. Miller, Glendale, and Melvin H. Smith, Parris, Calif., assignors to Bourns, Inc.
Original No. 3,378,704, dated Apr. 16, 1968, Ser. No. 518,902, Jan. 5, 1966. Application for reissue Dec. 5, 1968, Ser. No. 806,755

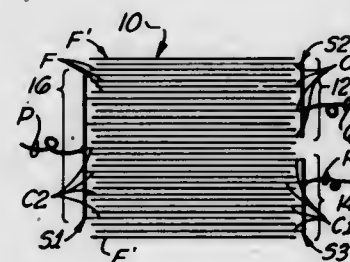
Int. Cl. H01v 7/00

U.S. Cl. 310-9.0

10 Claims

[1. A piezoelectric device comprising: an integral block-like structure comprising a unitary mass of polarized polycrystalline piezoelectric material comprising structurally integral first and second portions each polarized oppositely to the other and each of such portions containing a respective one of first and second sets of individually-insulated superposed thin electrically-conductive elements more

than two in number and said portions each containing a respective portion of a third set of individually-insulated thin electrically-conductive elements, the said conductive elements of said third set thereof being distributed among and alternating with conductive elements of the said first and second sets of elements; and



first and second electric terminal means the first of which is connected to said third set of conductive elements and the second of which is connected to said first and second sets of conductive elements.]

27,117

METAL FREE PHTHALOCYANINE IN THE NEW X-FORM

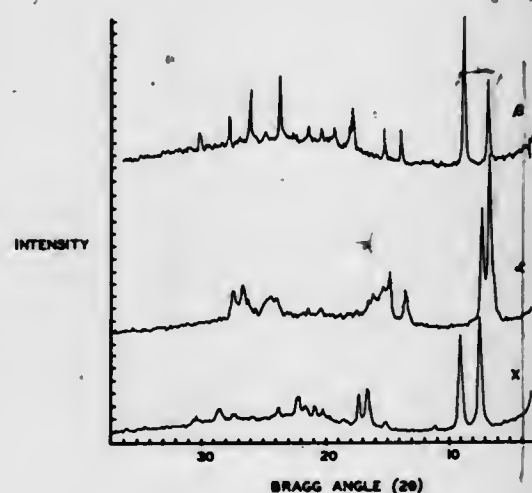
John F. Byrne, Worthington, and Philip F. Kurz, Columbus, Ohio, assignors to Xerox Corporation, Rochester, N.Y.

Original No. 3,357,989, dated Dec. 12, 1967, Ser. No. 505,723, Oct. 29, 1965, which is a continuation-in-part of Ser. No. 375,191, June 15, 1964. Application for reissue June 10, 1968, Ser. No. 741,815

Int. Cl. C09b 47/08

U.S. Cl. 260-314.5

2 Claims



A new polymorphic form of metal-free phthalocyanine is disclosed. This polymorph, referred to as the "X-form," is identified by X-ray and infrared spectra. Several methods of preparing the X-form of metal-free phthalocyanine are disclosed.

PLANT PATENTS

GRANTED APRIL 20, 1971

Illustrations for plant patents are usually in color and therefore it is not practicable to reproduce the drawing.

3,047

HYDRANGEA PLANT

Edgar G. Aldridge, Bessemer, and Loren L. Aldridge, Birmingham, Ala., assignors to Aldridge, Inc., Birmingham, Ala.

Filed Aug. 21, 1969, Ser. No. 852,124

Int. Cl. A01h 5/00

U.S. Cl. Plt.-54

1 Claim

A new variety of hydrangea plant characterized by its very large and showy flower clusters which include an unusually large number of flowers, all flowers being sterile and each consisting of numerous petaloid-sepals. The mature sepals are white and slowly turn to green and ultimately to brown. The plant branches extensively, grows to a height of about six feet, blooms continuously and profusely from April to August and the foliage turns to a deep wine color in autumn.

3,048

AZALEA PLANT

Carville M. Akehurst, Perry Hall, Md., assignor to Akehurst Nurseries, Perry Hall, Md.

Filed Apr. 1, 1969, Ser. No. 812,474

Int. Cl. A01h 5/00

U.S. Cl. Plt.-57

1 Claim

An azalea plant which is a sport of the azalea Hino Crimson, but with Empire Rose flowers.

3,049

STRAWBERRY

Edna Graham, One Farm, Shear Hill Road, Mahopac, N.Y. 10541

Filed July 17, 1969, Ser. No. 842,741

Int. Cl. A01h 5/03

U.S. Cl. Plt.-49

1 Claim

1. An everbearing strawberry that is truly an everbearer, one that is in continuous production from first spring fruiting until plants are killed by heavy frost, characterized by its habit of successive ripening of berries on each cluster; setting and ripening of fruits on runner plants to third and fourth progression on runners; exceptional vigor and reproductiveness; exceptional weather hardiness; small plants; large berries.

3,050

AVOCADO

William Penneck, Toa Baja, Puerto Rico, assignor to Commonwealth of Puerto Rico, as the representative of all of the people of Puerto Rico

Filed Mar. 5, 1969, Ser. No. 804,720

Int. Cl. A01h 5/03

U.S. Cl. Plt.-44

1 Claim

The original tree is a hybrid seedling having Guatemalan and West Indian parentage. The clove was prop-

3,051

ROSE PLANT

Jan Spek, Boskoop, Netherlands, assignor to Jackson & Perkins Company, Newark, N.Y.

Filed May 8, 1969, Ser. No. 823,194

Int. Cl. A01h 5/00

U.S. Cl. Plt.-29

1 Claim

1. A new and distinct variety of rose plant of the floribunda class, substantially as herein shown and described, characterized particularly as to novelty by the unique combination of a similarity substantially identical in all respects to the parent variety "Nordia," except for the color of the buds and open flowers, a capability of being forced without going "blind," a continuous blooming habit under forcing conditions, and a distinctive, attractive, truer and deeper red color of the buds and open flowers, corresponding to near Cardinal Red, as compared to the lighter and more Scarlet Red flower color of "Nordia."

3,052

FLOWERING CRABAPPLE TREE

Robert C. Simpson, Vincennes, Ind., assignor to Cole Nursery Company, Inc.

Filed July 22, 1969, Ser. No. 843,862

Int. Cl. A01h 5/03

U.S. Cl. Plt.-34

1 Claim

1. A new and distinct variety of flowering crabapple tree, *Malus cultivar*, having a rapid informal narrow upright growth habit, attractive foliage, an abundance of large double or semi-double, dark to purplish red flowers that do not fade, prominently displayed, an extended bloom period, a minimum production of fruits, and apparent freedom from scab and other diseases.

3,053

AFRICAN VIOLET

Hermann Holtkamp, Werther Strasse 5-7, Postfach 19, 4243 Isselburg, Germany

Filed Oct. 7, 1968, Ser. No. 765,700

Int. Cl. A01h 5/00

U.S. Cl. Plt.-69

1 Claim

A hybrid violet of a descendant of a cross between the *Saintpaulia ionantha* and *Saintpaulia shumensis* species which has permanent new characteristics including strength of stem, fast and vigorous growth, profuse flowering, uniform bouquet, prolonged blooming period, resistance to disease, reliability in initiating new plantlets, retention of flowers past maturity on their respective stems, reliability in new plants retaining characteristics of the parent and pronounced uniformity throughout the life cycle.

PATENTS

GRANTED APRIL 20, 1971

GENERAL AND MECHANICAL

3,575,136

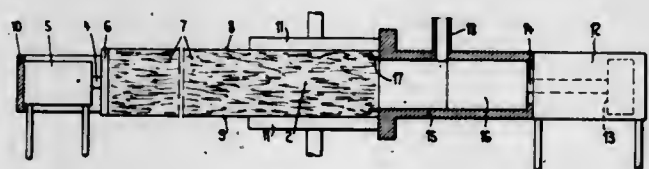
METHOD AND AN INSTALLATION FOR TREATING CHIP WOOD BOARDS AND CHIP WOOD BOARDS TREATED ACCORDING TO THIS METHOD
Paul Harder, Baselstrasse 62, 4142 Munchenstein, Switzerland

Filed Feb. 26, 1968, Ser. No. 708,065

Claims priority, application Switzerland, Mar. 11, 1967, 3556
Int. Cl. B05c 3/20

U.S. Cl. 118-410

2 Claims



Certain areas of chip wood board are increased in density by means of an injection device having a plunger therein and an outlet. A circumferentially closed relatively thin wall is supported by the device adjacent the outlet and is pressed into the board for limiting the area of the board to be treated. A density-increasing material is then injected and guided by the wall into the board. Holding members engage opposite surfaces of the board, and a clamping plate holds the board in position relative to the injection device.

3,575,137

ADHESIVE APPLYING DEVICES

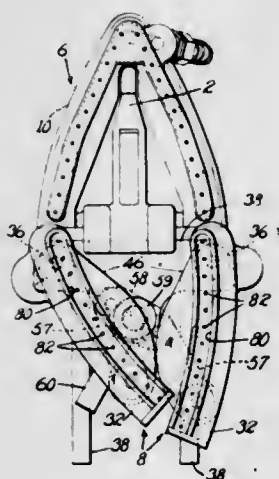
Gerard J. Marquis, Arlington, Mass., assignor to USM Corporation, Flemington, N.J.

Filed May 31, 1968, Ser. No. 733,573

Int. Cl. B05c 5/02

U.S. Cl. 118-411

2 Claims



An adhesive applying device for a shoe lasting machine with heated nozzles, each nozzle having outlets and an inlet through which a solid rod of thermoplastic adhesive is fed for melting in the nozzle and extrusion through the outlets onto the generally flat forepart of a shoe insole bottom.

3,575,138

ELECTROSTATIC COATING OF METAL POWDER ON METAL STRIP

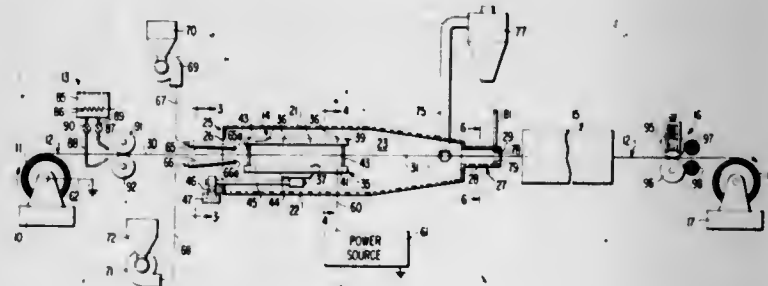
Lowell W. Austin, Weirton, W. Va., and James N. Baker, Pittsburgh, Pa., assignors to National Steel Corporation

Filed Jan. 5, 1968, Ser. No. 695,957

Int. Cl. B05b 5/02

U.S. Cl. 118-634

13 Claims



Apparatus for applying a metal coating on continuously moving metallic strip, particularly steel strip, by electrostatically depositing in one or in a plurality of regions a uniform layer of metal powder on the metallic strip and thereafter subjecting the strip and the layer of metal powder to heat treatment and then compaction to effect cohesion of the particles of metal powder and adhesion of the metal powder particles to the strip.

3,575,139

ELECTROSTATIC MAGNETIC DEVELOPER UNIT GATING APPARATUS

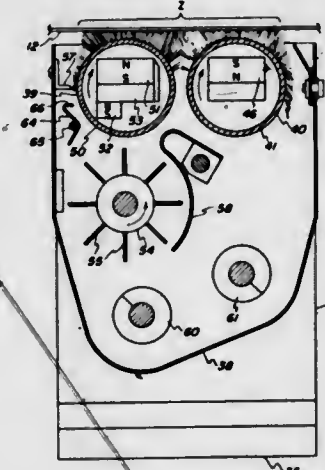
Larry W. Nuzum, Columbus, Ohio, assignor to Xerox Corporation, Rochester, N.Y.

Filed June 4, 1969, Ser. No. 830,437

Int. Cl. B05b 5/00

U.S. Cl. 118-637

8 Claims



A multiple gating arrangement combined with multiple brush developing unit formed with a magnetic developing blanket for effecting quick production and collapse of magnetic developing bristles for use in an electrostatic reproduction machine.

APRIL 20, 1971

GENERAL AND MECHANICAL

429

3,575,140

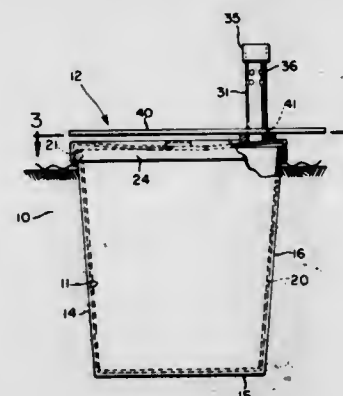
ANIMAL REFUSE CONTAINER

Imre Prepeliczay, 2994 E. 126 St., Cleveland, Ohio
Filed July 17, 1969, Ser. No. 842,495

Int. Cl. A01k 29/00

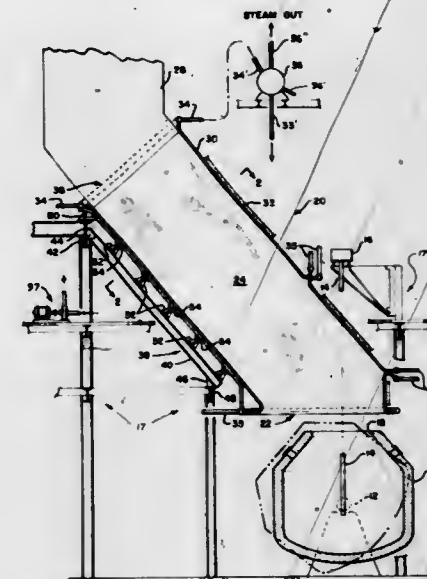
U.S. Cl. 119-1

4 Claims



A container adapted for insertion in a ground cavity so that the top portion thereof is substantially at ground level, including a grate forming a lid for the container and for securing a removable plastic liner therein. A hollow cylinder is mounted on the grate acting as a support for a manually swingable cover plate and as a receptacle for an animal attracting substance. The plastic liner within the container may be partially filled with a deodorizing and waste disintegrating chemical and the liner may be readily removed for disposal purposes.

surfaces interposed between the hood and the I-beams to permit relative movement therebetween in order to accommodate movement of the hood caused by thermal expansion in a downward direction.



3,575,143

BOILER AND AN ORDINARY TYPE HOT WATER DEVICE

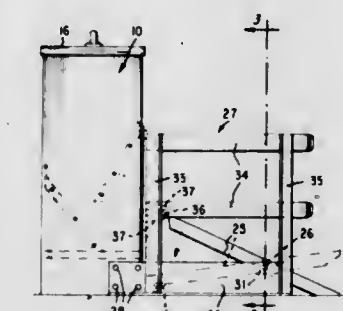
Noboru Maruyama, No. 26-14 Shirasagi 2-chome, Nakano-Ku, Tokyo, Japan

Filed June 18, 1969, Ser. No. 834,415

Claims priority, application Japan, July 12, 1968, 43/48456
Int. Cl. F22b 7/08

U.S. Cl. 122-166

6 Claims



3,575,141

ANIMAL FEEDER

Frederick R. Elkins, 3201 W. Caperton St., Shreveport, La.
Filed Oct. 8, 1969, Ser. No. 864,687

Int. Cl. A01k 05/02

U.S. Cl. 119-55

10 Claims

A single or plural unit animal feeder particularly for dogs and cats which is substantially rodentproof and weathertight and is further characterized by the absence of springs and moving linkages. The device is sturdy in construction and knocks down readily for shipment and is very reliable in operation. A sliding access door to a feed box is biased upwardly by a counterweighted pivoted platform which operates under the weight of the animal to slide the door downwardly to a feeding position.

A boiler and an ordinary-type hot water device comprising: a vertically oriented shell defining a hollow portion in the interior thereof, a heat absorbing body having an inwardly depressed concave form disposed within and spaced from said shell defining a fluid region therebetween, said fluid region including a peripheral fluid region portion about said heat absorbing body, a slanted inner flat body disposed within said heat absorbing body defining a semicylindrical heating gas chamber, successively narrowed upwardly, between a downside of said slanted flat body and said heat absorbing body, and also a semicylindrical heating gas space, successively enlarged upwardly, between an upside of said slanted flat body and said heat absorbing body, said inner flat body defining an opening at the top thereof communicating said semicylindrical heating gas chamber with said semicylindrical heating gas space, said flat body including a conduit communicating with said fluid region, means for passing a vaporizable fluid into said conduits, means for providing a heating gas in said semicylindrical heating gas chamber at the bottom thereof, and flue gas exit means communicating with said peripheral fluid region portion for removing said heating gas from said peripheral fluid region portion at the bottom thereof.

3,575,142

SUPPORT FOR INCLINED FUME HOOD

Andrew J. Sefcik, Ridgewood, N.J., assignor to Combustion Engineering, Inc., Windsor, Conn.

Filed July 1, 1969, Ser. No. 838,272

Int. Cl. F22b 1/18

U.S. Cl. 122-7

6 Claims

A method and apparatus for supporting an inclined tubular fusion welded wall fume hood above a "basic oxygen" process steel-making furnace. A strongback support com-

engine comprising at least two vapor adsorbent beds connected in series to the fuel bowl of the engine carburetor and to the fuel tank with the adsorbent bed nearest to the source of fuel vapor becoming the most saturated during an adsorption cycle; and, throttle-controlled valve conduits connecting the adsorbent beds to the fuel-air induction conduit of the carburetor whereby the least loaded adsorbent bed is purged during low engine loads but, as the throttle is opened to the full open position, all of the adsorbent beds will be purged.

3,575,153

REGULATED VOLTAGE CONVERTER

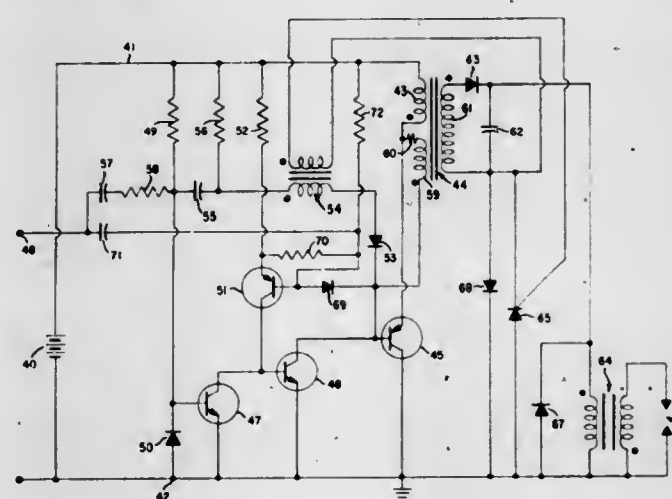
James T. Hardin, Lambertville, Mich., and William J. Roberts, Toledo, Ohio, assignors to Ekra Corporation, Toledo, Ohio

Filed Nov. 18, 1968, Ser. No. 776,337

Int. Cl. F02p 3/06; H02p 13/04

U.S. Cl. 123-148

8 Claims



A volt-second controlled DC to DC converter for use in capacitive discharge circuits such as flame heater exciters and ignition systems. A transistor switch in series with the primary of a transformer is turned on for a period of time inversely proportional to the supply voltage, thereby resulting in a constant peak primary current which is independent of the supply voltage. When the transistor switch is turned off, the secondary current produced by the collapsing magnetic field charges a capacitor which is connected in a capacitive discharge system.

3,575,154

CONSTANT-ENERGY IGNITION SYSTEMS

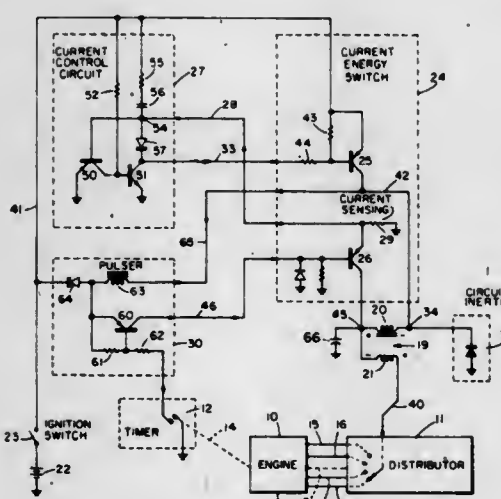
Douglas W. Taylor, Phoenix, Ariz., assignor to Motorola, Inc., Franklin Park, Ill.

Filed June 9, 1969, Ser. No. 831,534

Int. Cl. F02p 3/02

U.S. Cl. 123-148E

18 Claims



A constant-energy ignition system controlled by a solid-state circuit having an emitter-follower current sensing unit

in accordance with the current flowing through the ignition coil. A flywheel diode is connected between the coil and ground to maintain current through the coil just prior to ignition. Semiconductor switches are connected to the coil which are turned on and off by the current sensing unit to increase current through the coil a predetermined magnitude. Then the coil current source is turned off requiring the flywheel diode to permit current to flow through the coil for maintaining a substantially constant energy in the coil irrespective of engine speed. When the coil current amplitude has decreased to a second predetermined amplitude, coil current is again supplied through the switch.

3,575,155

MACHINE TOOL (STONE GROOVER)

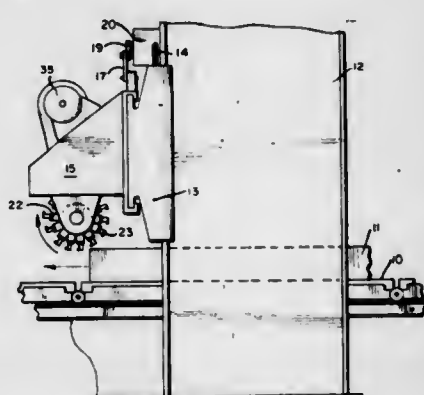
Wilmer Dale Byrd, Bedford, Ind., assignor to Ingalls Stone Company, Inc., Bedford, Ind.

Filed Mar. 20, 1968, Ser. No. 716,283

Int. Cl. B28d 1/18

U.S. Cl. 125-3

11 Claims



A machine for producing decorative, irregular striations in the face of building stone, comprising a conveyor for moving the stone to be striated past a rotating drum carrying a multiplicity of stone-grooving teeth distributed axially and circumferentially on the cylindrical face of the drum. Each tooth is supported from the drum through a resiliently yieldable mounting permitting limited displacement of the tooth axially, radially, and circumferentially of the drum under the influence of the cutting effort. If desired, the drum may be mounted for reciprocation axially of itself and transversely to the path of conveyor movement.

3,575,156

PREPACKAGED FIRE AND DISPOSABLE BARBECUE

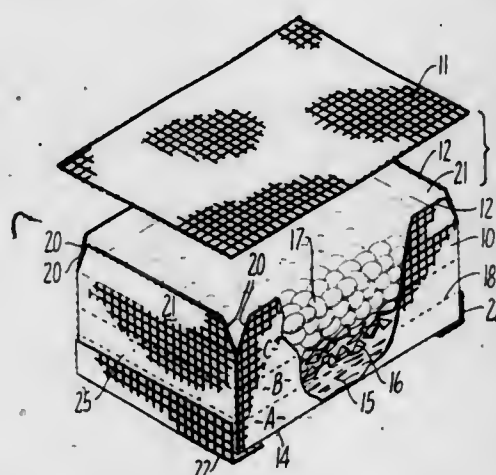
Leo W. Hosford, 8 La Cresenta Way, San Rafael, Calif.

Filed Oct. 30, 1969, Ser. No. 872,571

Int. Cl. A47j 37/00; F24b 3/00

U.S. Cl. 126-25

10 Claims



A portable packaged barbecue intended for disposal after single use, in which the basket for the fire is formed of

woven wire mesh, open at the top with the top edge provided with suitable cuts so that may be folded inwardly. The basket is provided with three layers of material preferably, the bottom layer being quick-starting material such as excelsior, the middle layer being kindling such as wood chips, and the top layer being charcoal of almond to walnut size. The grill for the barbecue fits within the basket over the charcoal and when the top edges of the basket are turned inwardly, the same forms a solid package. The whole package may be encased in a paper bag or other flammable wrapping. Barbecuing is instantly prepared. The bag is lighted with a match to start and after the excelsior has burned, the edges are folded back and the grill removed. The edges are then bent inwardly to support the grill at the appropriate distance above the fire. At the end of use, the charcoal is allowed to burn out or doused, and the basket and grill disposed of.

3,575,157

HOT WATER HEATING SYSTEM FOR PROVIDING HOT RINSE WATER AT UNIFORM TEMPERATURE

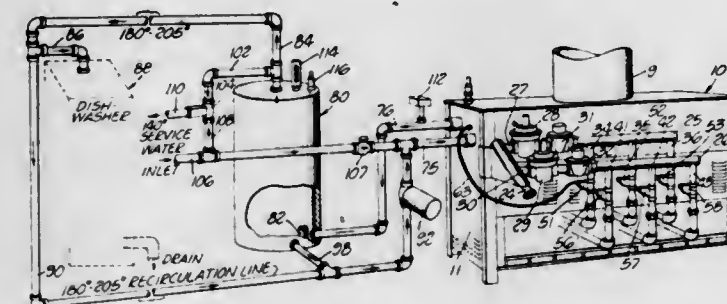
Alfred Whittel, Jr., Los Angeles, Calif., assignor to Raypak Company Inc., El Monte, Calif.

Continuation of application Ser. No. 866,134, Oct. 9, 1969, which is a continuation of application Ser. No. 711,406, Mar. 7, 1968. This application July 8, 1970, Ser. No. 56,168

Int. Cl. A47l 15/00; F24h 1/18, 9/20

U.S. Cl. 126-362

17 Claims



The invention is in the field of hot water heating and supply systems constructed to be able to supply hot rinse water at a temperature of, for example, 180° to 205° F. for the duration of relatively short but rapid draws, while maintaining this temperature. An accumulator tank of limited volumetric capacity is provided with a primary circulation loop between the lower part of the tank and the heater. The accumulator tank supplies a distribution loop including a dishwasher which is to be supplied with hot rinse water for sanitation purposes, at a temperature to be maintained in a range, for example, of 180° to 205° F. Makeup cold water is supplied from a city water line. A circulator provides for continuous circulation in the primary loop and when there is a draw of hot rinse water, cold water feeds in from the city water line. The heat source is modulated by thermostatic means responsive to the temperature of the incoming water to the heater. The heat source is capable of being modulated over a range adequate to meet load requirements so that in the event of a draw of hot rinse water, this is quickly sensed by the cold water entering the heater, causing immediate response by the thermostatic means so that the temperature in the accumulator tank is effectively maintained during the draw.

3,575,158

METHOD OF CONTROLLING URINE FLOW FROM THE BLADDER WITH AN INPLANTABLE PUMP

George D. Summers, Bethesda, Md., assignor to Fairchild Hiller Corporation, Montgomery County, Md.

Filed July 18, 1969, Ser. No. 842,921

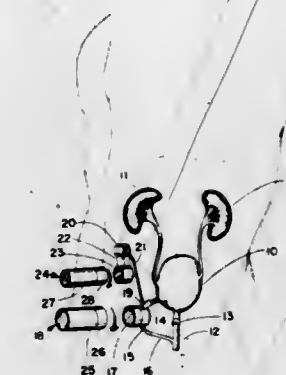
Int. Cl. A61b 19/00; A61f 1/24

U.S. Cl. 128-1

6 Claims

An implantable urinary control apparatus for controlling the flow of urine from the bladder including a pump con-

nected to the bladder for pumping urine out of the bladder and into a natural or artificial channel so that it can be discharged from the body. The apparatus also includes a sensor connected to the natural or to an artificial urinary bladder for detecting the pressure in the bladder as it fills with urine, and an alarm unit connected to the sensor for giving warning that the bladder is filling with urine when the sensor detects the pressure caused by urine in the bladder. A



method of controlling the flow of urine from the bladder including implanting and connecting a pump to the bladder and activating the pump to pump urine from the bladder when the bladder is filling with urine. The method also includes implanting a sensor in the body for detecting the pressure in the bladder as it fills with urine, and implanting and connecting an alarm unit to the sensor so that the alarm unit will give warning that the bladder is filling with urine when the sensor detects the pressure caused by urine in the bladder.

3,575,159

BONE STRUCTURE MISALIGNMENT DETERMINING APPARATUS HAVING POSITIONING MECHANISM FOR SEATED PATIENT

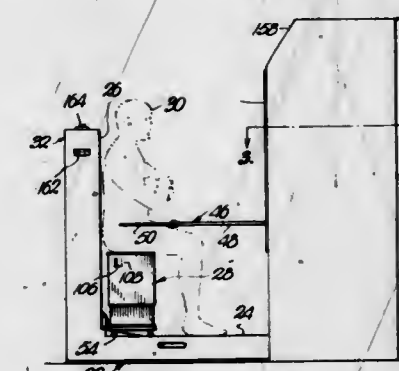
Donald L. Pile, Topeka, Kans., and Harold O. Irwin, Roseville, Kans. said Irwin assignor to said Pile

Filed Oct. 11, 1968, Ser. No. 766,774

Int. Cl. A61b 5/10

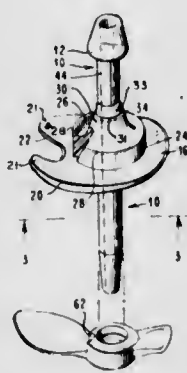
U.S. Cl. 128-2

10 Claims



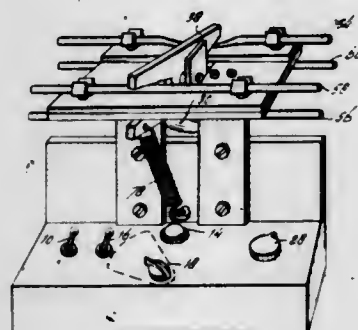
Apparatus for use by chiropractors and other medical professionals has a seat for receiving a patient suspected of having misaligned bone structure. In particular, contact tips are shifted into engagement with the notches below the anterior-superior crests of the ilia and any deviation from the proper positions thereof is detected. The seat is provided with a pair of flat, pivotal members supporting the ischia of the patient which may be individually raised to compensate for any measured deviation. The required degree of movement of a given member is registered on a dial, the data thus obtained being used to prepare an ischial lift for the patient.

3,575,160
INSTRUMENTS FOR ADMINISTERING FLUIDS INTO THE INTESTINAL TRACT PER RECTUM
 Alexander A. Vass, and Clara Vass, 309 E. 87th St., New York, N.Y. 10028
 Continuation-in-part of application Ser. No. 670,603, Sept. 26, 1967, now Pat. No. 3,469,575. This application Nov. 13, 1968, Ser. No. 775,486
 Int. Cl. A61m 3/00
 U.S. Cl. 128—2R 15 Claims



An instrument for administering fluid into the intestinal tract per rectum, which includes a tube having a rectum entering end portion, the tube having enlargements distally of said end portion engageable against the body area surrounding the anal opening of the rectum and entering thereinto for sealing the same when said end portion is disposed within the rectum, to seal the anal orifice, and another enlargement distally spaced from said first enlargements and engageable by body portions spaced distally from the anal opening for retaining the instrument in place after it is in anal orifice sealing position.

3,575,161
VALVE FOR BIOLOGICAL SYSTEMS
 Seymour B. London, 35 E. DiLido Drive, Miami Beach, Fla.
 Filed Mar. 7, 1968, Ser. No. 711,426
 Int. Cl. A61b 5/02; F16I 55/14
 U.S. Cl. 128—2.05 7 Claims

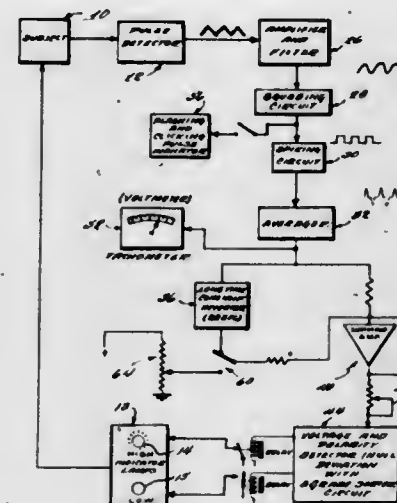


An electronically controlled, contamination-free valve for biological systems of the type feeding fluid through a plurality of compressible tubes and comprising a rocker arm pivotable so as to compress the tubing and control fluid flow, as a photocell circuit senses variant light transmission characteristics of the fluid feeding through the tubes.

3,575,162
PHYSIOLOGICAL MONITORS AND METHOD OF USING THE SAME IN TREATMENT OF DISEASE
 Kenneth R. Gaarder, 6316 Rockhurst Road, Bethesda, Md.
 Filed Dec. 23, 1968, Ser. No. 785,908
 Int. Cl. A61b 5/02 10 Claims

U.S. Cl. 128—2.05T
 Psychotherapeutic treatment of a subject is facilitated by providing the subject with meaningful feedback information derived with the aid of a self-monitoring machine which measures a physiological or psychophysiological variable not or-

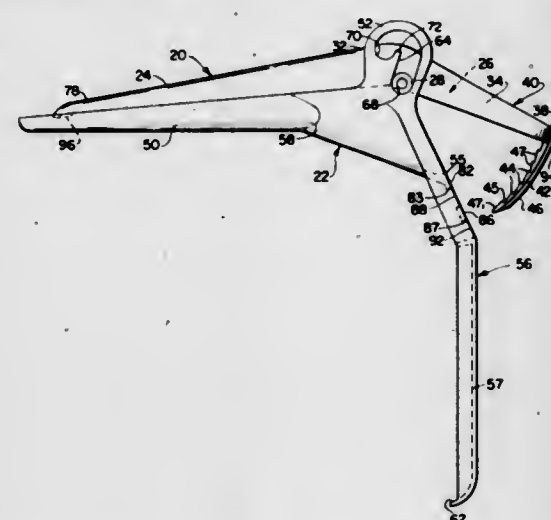
dinarily sensed by the subject. Depending on the nature of the relationship between the variable and the unwanted con-



dition being treated or investigated, the subject learns to gain control over or to account for adverse or unwanted changes in the variable, thereby aiding in the treatment of the unwanted condition or the recognition of the unwanted condition. A specific embodiment of a self-monitor comprises a detector for generating an electrical signal at each heart pulse, a circuit for modifying and compensating the signal to eliminate normal changes in pulse rate and visual signal lights for indicating only significant pulse rate changes to the subject.

3,575,163
VAGINAL SPECULUM
 Arthur D. Gasper, Lawrence, Kans., assignor to Monarch Molding, Inc., Council Grove, Kans.
 Filed Feb. 12, 1968, Ser. No. 704,599
 Int. Cl. A61b 1/32 14 Claims

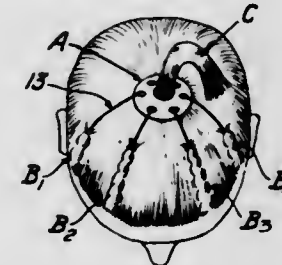
U.S. Cl. 128—17



A disposable two-piece, plastic vaginal speculum with variable proximal end openings and multiple distal end opening adjustments. The blades are pivoted on a shiftable hinge structure at their proximal ends and the anterior blade-piece has an operating lever with a depending integral trigger latch having latching teeth on the side facing the blades. The posterior blade-piece includes a handle and slotted side ears which receive trunnions on the anterior blade and permit the hinge shift. Openings in part of the handle provide latch abutments for the teeth on the trigger latch. The trigger latch and blade lever have inherent resilience providing flexing to permit ratcheting of the latch teeth past a latch abutment when distal blade ends are pivoted to open position and the trigger latch is urged by the integral resilience to its latched condition. The trigger latch is manually flexed toward the rear by the operator to close the blades.

3,575,164
FACELIFT FOR COIFFURE WITH CONCEALED ANCHOR
 Leah Heale, 5284 Hoyet Drive, San Jose, Calif.
 Continuation of application Ser. No. 623,885, Mar. 17, 1967, now abandoned. This application May 19, 1969, Ser. No. 830,190
 Int. Cl. A61f 5/08 7 Claims

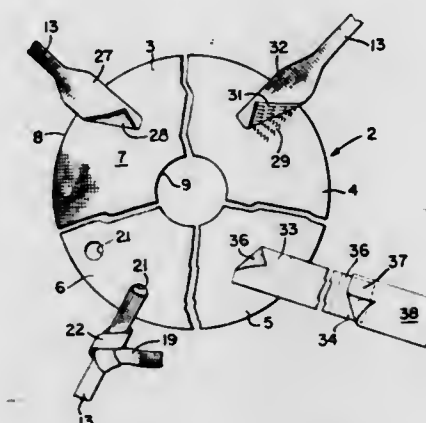
U.S. Cl. 128—76



A flat anchor member having a hole therein for receiving a lock or "pony tail" of hair to secure the anchor member at a desired location on a wearer's scalp and having a plurality of eyelets at selected points about the hole for attaching thereto one end of each of a selected number of elastic bands, each band extending under tension from the anchor member to a braided lock of the wearer's hair rooted adjacent a portion of the wearer's face to which it is desired to apply "lift" tension:

3,575,165
FACELIFT DEVICE
 Leah Heale, 5284 Hoyet Drive, San Jose, Calif.
 Filed Nov. 19, 1969, Ser. No. 877,896
 Int. Cl. A61f 5/08 8 Claims

U.S. Cl. 128—76B



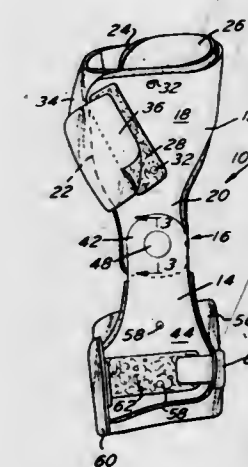
A facelift device adapted to be worn on the head in a manner that it may be covered by a wig, the facelift device including an anchor portion adapted to be engaged by the ends of a multiplicity of tension members, the other ends of which are selectively secured to the wearer's skin closely adjacent the hairline and in a position to tension the skin to eliminate lines and wrinkles therefrom.

3,575,166
KNEE BRACE
 Maurice Rosman, 6165 Elmwood Ave., and Anthony Calabrese, 2529 S. Warnock St., Philadelphia, Pa.
 Filed May 14, 1968, Ser. No. 728,929
 Int. Cl. A61f 3/00 7 Claims

U.S. Cl. 128—80

A knee brace is disclosed which closely simulates the rocking-hinge joint motion and sliding motion of a knee. The knee brace is comprised of an upper rigid body and a lower rigid body, each having legs pivotably coupled together in a manner so that the legs may pivot relative to each other about an axis generally perpendicular to the zone of overlap and may slide relative to each other in all radial directions generally parallel to the zone of overlap. In one embodiment,

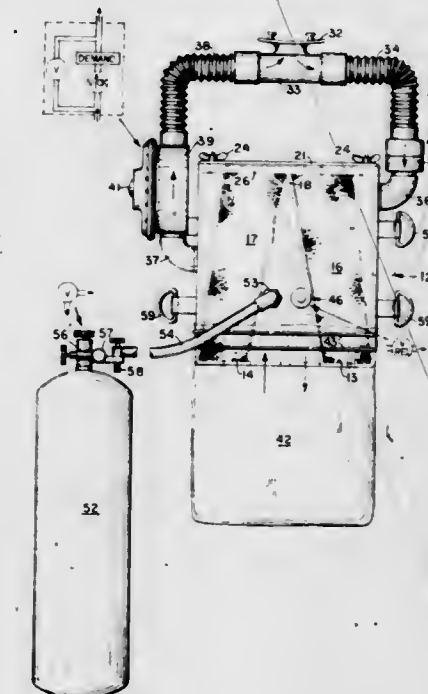
the legs may also pivot toward and away from one another. The knee brace may be worn under the pants of the wearer.



who may run, walk, or sit down without giving any indication that he is wearing a knee brace.

3,575,167
MULTIPURPOSE BREATHING APPARATUS
 Charles E. Michielsen, 1120 Cervantes Way, Pacifica, Calif.
 Filed June 6, 1968, Ser. No. 735,143
 Int. Cl. A62b 7/04 3 Claims

U.S. Cl. 128—142.2



A versatile closed-circuit breathing apparatus has a rectangular canister which is partitioned to provide for two separated volumes of CO₂ absorbent. A mouthpiece, tubing and nonreturn valves, including a demand valve on the inhalation side, define a breath flow circuit in which exhalation passes through one volume of CO₂ absorbent then through an expandable breathing bag and which is also a moisture trap and then back to the mouthpiece through the other volume of absorbent. Loss of effectiveness from moisture channelization is initially confined largely to one-half of the total volume of absorbent thereby providing for more uniform effectiveness over a long period of use. The construction is readily adaptable to a variety of uses including protection from contaminated atmospheres of various kinds, diving, resuscitation, decompression and medical uses.

3,575,168

VOLATILE ANAESTHETIC VAPORISING APPARATUS
 Wilfred Jones, Riddlesden, Keighley, and Ronald William Carter, Keighley, England, assignors to Cyprane Limited, Yorkshire, England

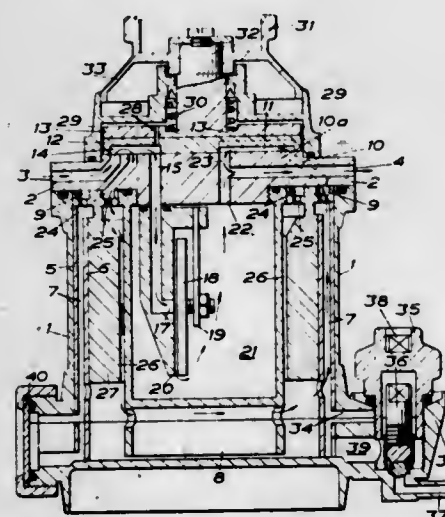
Filed Nov. 29, 1968, Ser. No. 779,791

Claims priority, application Great Britain, Nov. 29, 1967,
 54242/67

Int. Cl. A61m 17/00

U.S. Cl. 128-188

2 Claims



A volatile anesthetic vaporizing apparatus including a rotary percentage control plate valve for controlling two divided inflowing gas streams, one stream being passed over liquid volatile anesthetic to form a vapor and the other bypassed through a duct controlled by a temperature responsive bypass valve, said plate valve also controlling the outflow of gas-vapor mixture, said bypass valve having a resistance characteristic which is inconstant.

3,575,169

HYGIENIC MEDIUM APPLICATOR

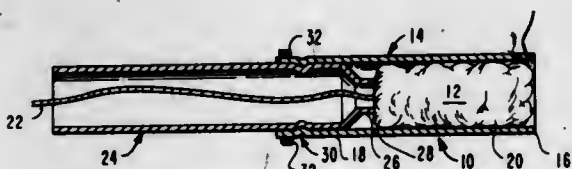
Joseph A. Voss, Denver, Colo., and Carl W. Johnson, Neenah, Wis. Said Johnson assignor to said Voss

Filed Nov. 7, 1968, Ser. No. 774,095

Int. Cl. A61f 15/00

U.S. Cl. 128-263

11 Claims



An hygienic medium applicator having an inner tube which telescopes within an outer tube to eject an hygienic medium carried therein, the outer surface of the outer tube having an arrangement of one or more elements secured thereto to enhance gripping and referencing of the applicator during use.

3,575,170

BREATHING ASSEMBLY FOR A SEALED CONTAINER
 James L. Clark, Whitefish Bay, Wis., assignor to Plastronics Inc., Milwaukee, Wis.

Filed Feb. 14, 1969, Ser. No. 799,331

Int. Cl. A61f 5/44

U.S. Cl. 128-275

5 Claims

A breather assembly for a sealed container such as a bedside drainage bag comprising a breather element of woven fiberglass fabric material with a teflon coating adapted to permit free passage of gas therethrough and to resist passage of liquid therethrough. The breather element also acts to filter out bacteria in the air to thus prevent its entrance into

the container. The breather element is mounted in a circular opening in a retaining ring member and permanently retained therein by a pair of outer housing members sealed by elec-



tronic welding to the retaining ring member. The assembly is then mounted in the wall of a container such as a bedside drainage bag with the breather element positioned in alignment with a flow opening in the wall of the container.

3,575,171

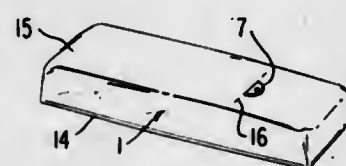
DISPOSABLE SANITARY NAPKIN-BELT COMBINATION
 Mafalda L. Rugen, 17 Crest Drive, Murray Hill, N.J.

Filed Jan. 15, 1969, Ser. No. 791,450

Int. Cl. A61f 13/16

U.S. Cl. 128-289

3 Claims



A sanitary napkin having an elastic strand attached thereto to serve as a belt is packaged as a disposable unit. The strand is provided with a buckle whereby the wearer may secure the ends of the strands together to form a sanitary napkin-supporting belt around her waist. The unit is packaged by enveloping it with a plastic sheet having a slot. A portion of the buckle is pulled through the slot to expose it outside the package, whereby the exposed portion serves as a tab to sever the wrapping and open the package.

3,575,172

SANITARY PADS WITH END LOOPS FOR STRINGS

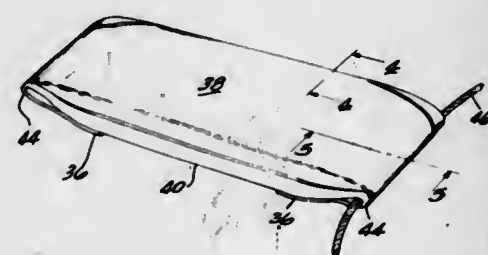
Ruth Joa Kiela, 411 Ridge Court, Kohler, Wis.

Filed Nov. 6, 1968, Ser. No. 773,849

Int. Cl. A61f 13/16

U.S. Cl. 128-290

3 Claims



Disclosed herein is an absorbent pad having a pulp filler encased within a wrapper or envelope which extends outwardly from each end of the filler forming end tabs with the end tabs heat sealed onto the wrapper by the thermoplastic material used in forming the wrapper or envelope and a string or cord provided in the loop formed by the end tabs.

3,575,173

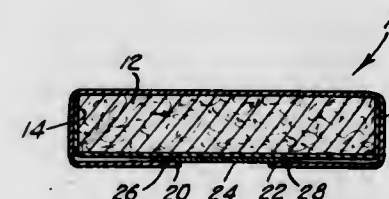
FLUSHABLE DISPOSABLE ABSORBENT PRODUCTS
 Michael Loyer, South Somerville, N.J., assignor to Personal Products Company

Filed Mar. 13, 1969, Ser. No. 807,780

Int. Cl. A61f 13/16

U.S. Cl. 128-290

10 Claims



A body fluid absorptive and retentive product, such as a sanitary napkin, having an absorbent core and a waterproof moisture barrier, is wrapped in a wrapper material comprising a cover and a water-soluble or water-dispersible material which (1) maintains the structural stability of the absorbent product during use, and (2) is capable of disintegration upon subsequent treatment with water, whereby it may be disposed of readily and safely, such as by flushing in an ordinary water closet or toilet bowl.

3,575,174

SANITARY NAPKIN

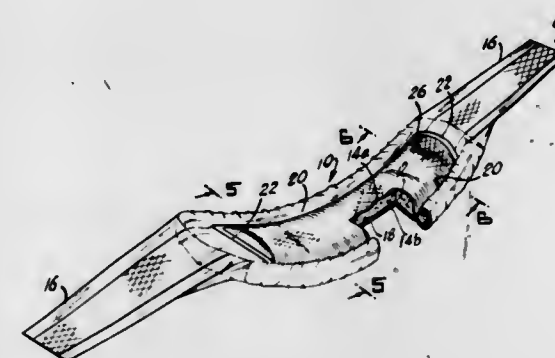
Ernest Mogor, North Brunswick, N.J., assignor to Personal Products Company

Filed July 11, 1969, Ser. No. 840,962

Int. Cl. A61f 13/16

U.S. Cl. 128-290

6 Claims



A sanitary napkin which is formed in either a curved or flat configuration, tapered toward its rearward end, and is maintained in its shaped configuration by deep embossed channels impressed through the cover and into the core of the napkin to compression bond the two components together. The deep embossed channels are positioned near the lateral and end edges on the top surface of the napkin and at the rearward end on the bottom surface of the napkin.

3,575,175

REMOVABLE PROTECTIVE LINER FOR NETHER GARMENTS

Mary H. McGuire, East Brunswick, N.J., assignor to Personal Products Company

Filed Aug. 11, 1969, Ser. No. 848,812

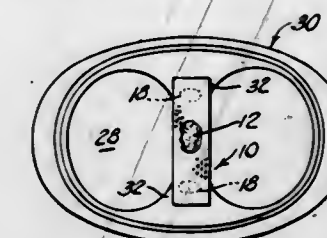
Int. Cl. A61f 13/16

U.S. Cl. 128-290

9 Claims

A protective liner which is temporarily, but securely, held to the interior crotch portion of nether garments by double-faced, pressure sensitive adhesive labels provided on the under surface of the liner. The adhesive label possesses differential adhesion levels such that the adhesive layer that secures the label to the protective liner possesses a greater

level of adhesion so as to permanently adhere the label thereto, than does the adhesive layer of the label that tem-



porarily, but securely, adheres the label and the liner to the crotch portion of the nether garment.

3,575,176

RECHARGEABLE CRYOSURGICAL INSTRUMENT

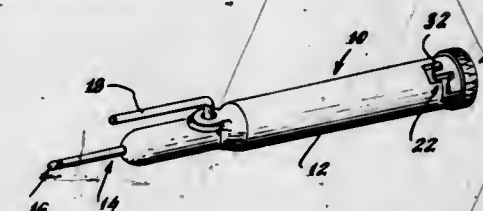
Ralph E. Crump, Trumbull; Frank L. Reynolds, Monroe, and Victor A. Thyberg, Fairfield, Conn., assignors to Frigitorics of Conn. Inc., Bridgeport, Conn.

Filed Oct. 21, 1968, Ser. No. 769,065

Int. Cl. A61b 17/36; F25d 3/00

U.S. Cl. 128-303.1

9 Claims



This disclosure relates to a rechargeable cryosurgical instrument having operating mechanism located at one end and a refrigerant cartridge-receiving chamber opening to the atmosphere at its other end. A removable end cap closes the open end of the instrument and is selectively positionable to locate a housed refrigerant cartridge in a dispensing or conserving position. In the dispensing position of the end cap, the pressurized refrigerant is dispensed from the cartridge through a delivery tube to a boiler valve located adjacent a cooling tip to reduce the temperature of the tip. The spent refrigerant is exhausted from the housing through an opening in the removable end cap. A selectively operable finger-actuated lever located at the exterior of the housing operates the boiler valve to either cool or warm the cooling tip.

3,575,177

SMOKING PRODUCT OF CELLULOSIC MATERIAL SUBJECTED TO A NITROGEN DIOXIDE OXIDATION AND A MILD OXIDATION WITH PEROXIDE

Theodore S. Briskin, and Geoffrey R. Ward, Beverly Hills, Calif., assignors to Sutton Research Corporation, Los Angeles, Calif.

Continuation-in-part of application Ser. No. 595,622, Nov. 21, 1966, Continuation-in-part of application Ser. No. 674,994, Oct. 12, 1967. This application July 17, 1968, Ser. No. 745,402

Int. Cl. A24b 15/00

U.S. Cl. 131-2

11 Claims

The preparation of a smoking product formulated of a cellulosic material which has been oxidized in the presence of nitrogen dioxide and in which the oxidized product is subjected to a second mild oxidation reaction with a dilute peroxide solution, with or without previous reduction with borohydride.

3,575,178

A PROCESS FOR INCREASING THE FILLING CAPACITY OF TOBACCO

Grant Mathews Stewart, Winston-Salem, N.C., assignor to R. J. Reynolds Tobacco Company, Winston-Salem, N.C.

Filed Mar. 13, 1969, Ser. No. 806,967

Int. Cl. A24b 03/18

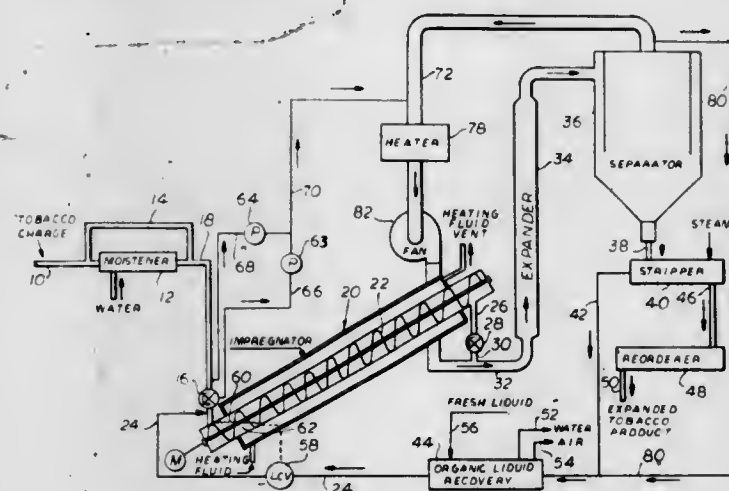
U.S. Cl. 131-140

18 Claims

A process of increasing the filling capacity of tobacco is provided in which tobacco and an impregnating organic liquid are contacted in one zone and contact of the tobacco

with vapors of the liquid is continued in another zone until the tobacco is thoroughly impregnated. The impregnation is carried out at moderately elevated temperatures and pressures. After impregnation is substantially complete, the tobacco is withdrawn from the impregnating zone and immediately heated at a reduced pressure to an elevated tem-

perature whereby expansion occurs. The heating is effected in a stream of circulating hot gas from which the tobacco is separated and the gas including vapors of the impregnating liquid are heated and recycled. The flow of impregnating fluid to the impregnating zone is controlled by the liquid level of the body of liquid impregnating fluid maintained in the impregnating zone.



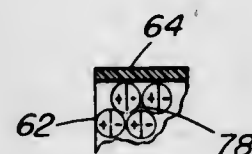
perature whereby expansion occurs. The heating is effected in a stream of circulating hot gas from which the tobacco is separated and the gas including vapors of the impregnating liquid are heated and recycled. The flow of impregnating fluid to the impregnating zone is controlled by the liquid level of the body of liquid impregnating fluid maintained in the impregnating zone.

3,575,179 TOBACCO SMOKE FILTER

John H. Troll, 2305 Andrews Ave., Bronx, and Alan N. Aldern, 88 Remsen St., Brooklyn, N.Y.
Original application Apr. 27, 1967, Ser. No. 634,196, now Patent No. 3,463,168. Divided and this application May 21, 1968, Ser. No. 739,965
Int. Cl. A24f 07/04

U.S. Cl. 131-262

1 Claim



A tobacco smoke filtering means having passageways through which the smoke passes, the passageways being defined by substantially spherical dielectric particles each of which is electrostatically charged so as to manifest a positive charge on one side and a negative charge on its opposite side.

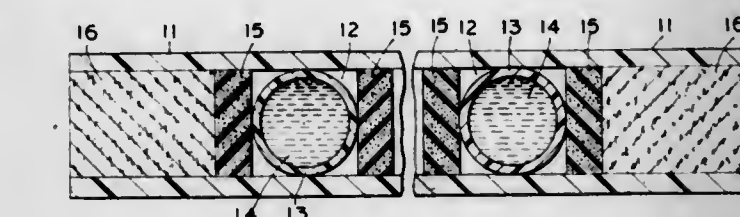
3,575,180 WATER-REACTIVE FILTER ELEMENT FOR SMOKING DEVICES

Margaret F. Carty, Plainfield, Vt., assignor to The H-2-O Filter Corporation, New York, N.Y.
Filed Aug. 7, 1968, Ser. No. 750,902
Int. Cl. A24f 07/04, 25/02

U.S. Cl. 131-264

1 Claim

A filter element for smoking articles such as cigarettes, cigars and pipes, wherein a resilient, waterproof housing is enclosed at the ends by means of smoke permeable material. An alternating arrangement of a plurality of frangible containers partially filled with water, and a plurality of bodies compressed water reactive sponge filtering material of such a nature as to expand rapidly upon contact with water, is located within the housing. The diameter of each of the compressed bodies is substantially equal to the inner diameter of the housing. Any adjacent pairs of frangible containers are in



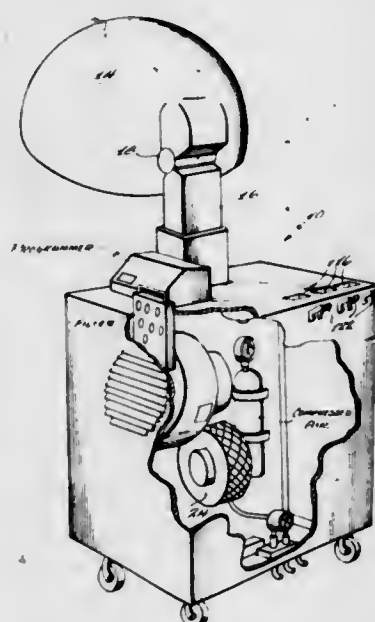
equally by the compressed sponge filtering material and the containers. The sponge material thus moistened provides a smoker with increased smoking comfort and enjoyment because of the elimination of harshness in the smoke and the reduction of the temperature thereof.

3,575,181 HAIR-TREATING DEVICE

Richard E. Rudd, Rockville, Md. (1605 Garden St., Santa Barbara, Calif. 93101)
Filed Sept. 23, 1965, Ser. No. 489,631
Int. Cl. A45d 19/00

U.S. Cl. 132-9

12 Claims



CLAIM 1. Hair-treating apparatus comprising: a headset having a crown, said headset being adapted to cover the hair and scalp area of the head of a person being treated, a plurality of brush means mounted for movement within said headset for contacting and treating hair on the head of a person, means for moving said brush means in a controlled pattern against the head of the person being treated, means for extending and retracting said brush means into and out of contact with the person's head, and dispensing means connected to the interior of said headset for selectively dispensing liquids to the hair being treated.

3,575,182 HEATING CLIPS FOR PERMANENT WAVING OF THE HAIR

Jean Leclabart, 53, Avenue Raymond Poincare, Paris, France
Filed Mar. 11, 1969, Ser. No. 806,182
Claims priority, application France, Mar. 26, 1968, 145,445
Int. Cl. A45d 2/36

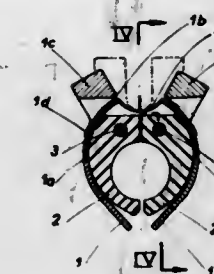
U.S. Cl. 132-36

1 Claim

The invention relates to improvements to heating clips for permanent waving, of the type comprising two halves connected by a spring forming the clip hinge, each half being provided with a heating lining into which a metal rod is in-

serted and acts as heat storage means. The invention is characterized in that each end of each of the two halves has a longitudinal retaining stop for the heating lining, each stop

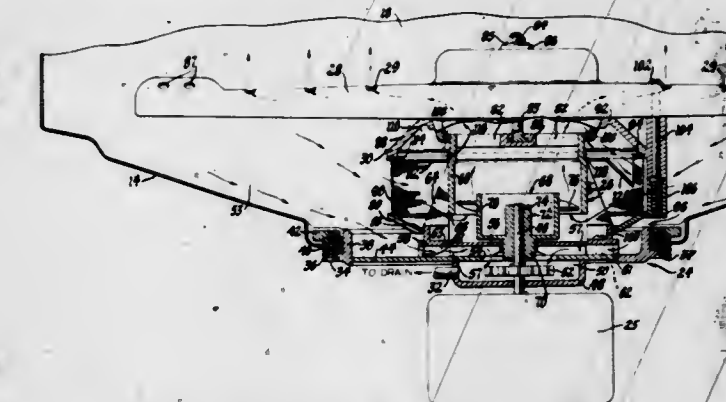
to spray high pressure cleaning liquid against the sides of the vehicle, and a movable carriage carrying a series of spray nozzles is adapted to ride over the top of the vehicle as the vehicle moves through the apparatus to clean the front, top and rear surfaces of the vehicle.



3,575,185
SELF-CLEANING DISHWASHER STRAINER
Daniel J. Barbulesco, Dayton, Ohio, assignor to General Motors Corporation, Detroit, Mich.
Filed Oct. 23, 1968, Ser. No. 769,918
Int. Cl. B08b 3/02

U.S. Cl. 134-104

2 Claims



has an opening in which the metal rod of the lining engages by one of its ends to ensure that the lining is retained in the transverse direction.

3,575,183 PICKUP COMB

George Lee Tanner, Sr., P.O. Box 284, Dacula, Ga.
Filed Aug. 22, 1969, Ser. No. 852,222
Int. Cl. A45d 24/00

U.S. Cl. 132-160

1 Claim



An improved comb for individual or professional use in haircutting and hair styling, the device comprising a comb which includes a plurality of teeth being serrated with grooves on opposite sides thereof, the grooves supporting the hairs in a desired spread out position.

In preferred form, a domestic dishwasher including an improved self-cleaning strainer which removes food particles from washing fluid during its recirculation in a wash phase of operation. It includes an annular screen supported by a fluid distributing rotatable spray bar for rotation therewith and in surrounding relationship to a recirculating pump intake to prevent the entrance of food particles therethrough. A portion of the pump's output is diverted from the spray bar and directed by a stationary deflector plate through the revolving screen to backflush particles from the screen to prevent clogging. A drain pump with its inlet located below the screen removes both wash water and food particles from the dishwasher during a drain cycle.

ERRATUM

For Class 134-168 see:
Patent No. 3,575,729

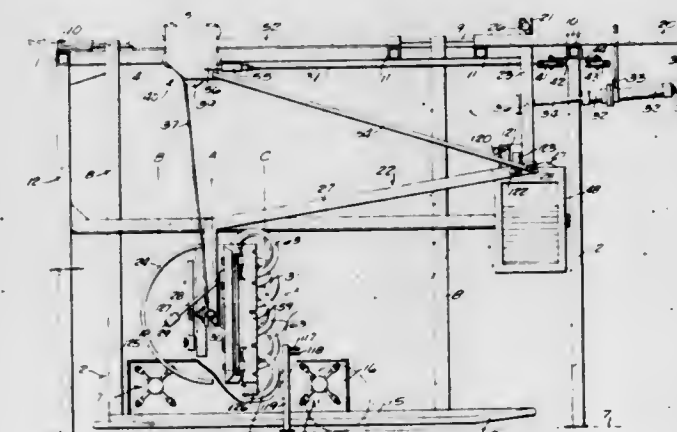
3,575,186 UMBRELLA HANDLE

Heinz Seitel, Solingen-Ohligs, Germany, assignor to Telesco Brophey Limited, Montreal, Quebec, Canada
Filed Mar. 13, 1969, Ser. No. 806,990
Claims priority, application Germany, Mar. 18, 1968, P 16 32 501.2
Int. Cl. A45b 25/12

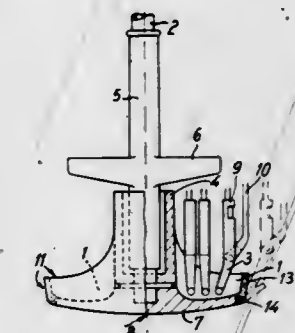
U.S. Cl. 134-45

25 Claims U.S. Cl. 135-44

6 Claims



A vehicle washing apparatus utilizing high pressure liquid spray nozzles. The apparatus includes a pair of side banks, each incorporating a series of rotatable spray nozzles adapted



The umbrella handle is of the type generally known as having a flat cross-sectional shape when the umbrella is collapsed in a stowed position and normally includes a telescopic stick with collapsible dome-ribs. The handle includes seats for seating the ends of the dome-ribs and retaining them in a closed position; a portion of the dome ribs seats being displaceably mounted to allow the dome ribs to pivot outwardly of the seats when the umbrella is opened.

3,575,187

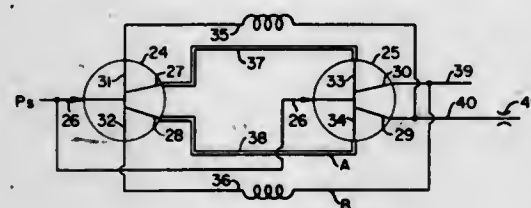
FLUIDIC PRESSURE-SENSITIVE OSCILLATOR
Trevor G. Sutton, Tempe, Ariz., assignor to The Garrett Corporation, Los Angeles, Calif.

Filed June 13, 1968, Ser. No. 736,787

Int. Cl. F15c 1/08

U.S. Cl. 137-81.5

6 Claims



The subject fluidic oscillator means includes a pair of bistable amplifiers having feedback control lines selected and connected in a manner to render the resulting device relatively insensitive to variations in the fluid pressure supply. The control signal ports of each amplifier are connected with the output ports of the other amplifier by conductors of predetermined differential length-to-area and volume ratios so selected and combined as to counteract the effects of supply pressure change, thus securing the above-mentioned result.

3,575,188

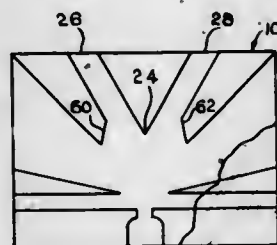
PROPORTIONAL FLUIDIC AMPLIFIER
Charles J. Ahern, Sidney, N.Y., assignor to The Bendix Corporation

Filed Jan. 27, 1969, Ser. No. 794,064

Int. Cl. F15c 1/04

U.S. Cl. 137-81.5

1 Claim



A proportional amplifier having tapering channel means to prevent overdrive and subsequent fluid loss thereby providing a fluidic element whose output pressure curve demonstrates a hard saturation characteristic.

3,575,189

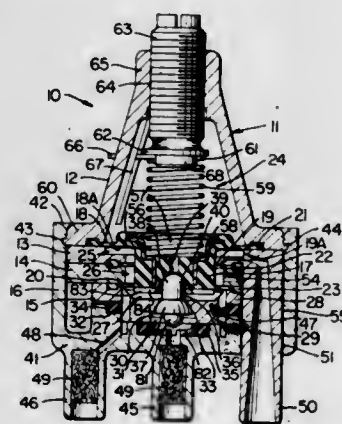
PNEUMATIC CONTROL SYSTEM AND PNEUMATICALLY OPERATED REVERSING RELAY CONSTRUCTION THEREFOR OR THE LIKE
Larry S. Smith, Goshen, Ind., assignor to Robertshaw Controls Company, Richmond, Va.

Filed Feb. 3, 1969, Ser. No. 796,073

Int. Cl. F15b 5/00; G05d 16/00

U.S. Cl. 137-85

20 Claims



This disclosure relates to a reversing pneumatic relay construction comprising a housing carrying a one-piece

diaphragm member having three spaced diaphragm portions disposed in stacked relation that cooperate with the housing to define a branch pressure chamber, a pilot pressure chamber and an exhaust chamber in stacked relation with the housing having a stationary valve seat for interconnecting a main pressure chamber and the branch chamber together. The diaphragm member is adapted to open and close the valve seat and has an opening passing therethrough for interconnecting the branch chamber and the exhaust chamber together. A movable valve member for opening and closing the stationary valve seat is disposed in the main chamber and projects through the valve seat into the branch chamber for controlling the opening passing through the diaphragm member.

3,575,190

PNEUMATIC CONTROL SYSTEM AND PNEUMATIC RELAY FOR THE SAME OR THE LIKE

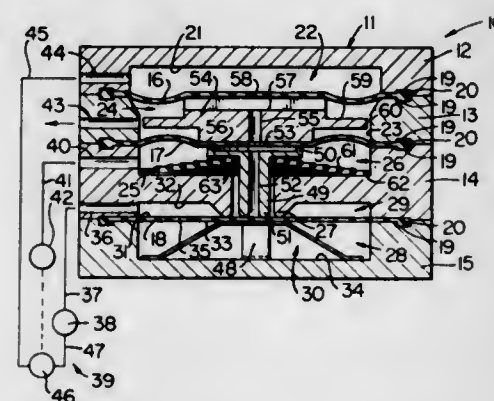
Louis M. Puster, and Edward N. Caldwell, Knoxville, Tenn., assignors to Robertshaw Controls Company, Richmond, Va.

Filed Mar. 10, 1969, Ser. No. 805,531

Int. Cl. F15b 5/00; G05d 16/00

U.S. Cl. 137-85

20 Claims



This disclosure relates to a pneumatic relay comprising a housing carrying three diaphragms in stacked relation that cooperate therewith and define a main pressure chamber, a branch pressure chamber, an exhaust chamber and a pilot pressure chamber in stacked relation with the housing having a stationary valve seat for interconnecting the main chamber and the branch chamber together. One of the outboard diaphragms opens and closes the valve seat and the intermediate diaphragm has an opening therethrough for interconnecting the branch chamber and the exhaust chamber together. A movable valve member is disposed in the branch chamber and projects into the valve seat for controlling the opening in the intermediate diaphragm by preventing fluid communication between the branch chamber and the exhaust chamber when the valve member is engaged by both the intermediate diaphragm and the one outboard diaphragm and by permitting fluid communication between the branch chamber and the exhaust chamber when the valve member is not engaged by one of the one outboard diaphragm and the intermediate diaphragm.

3,575,191

PNEUMATIC CONTROLLER OF MOTION BALANCE TYPE

David G. Rees, Telford; David G. Grier, Elkins Park, and Daniel Meiklejohn, Hartsville, Pa., assignors to Fischer & Porter Co., Warminster, Pa.

Filed Aug. 6, 1969, Ser. No. 847,991

Int. Cl. F15b 5/00; G05d 16/00

U.S. Cl. 137-85

11 Claims

A pneumatic controller provided with a flapper-nozzle assembly and an actuator-arm assembly. The flapper-nozzle assembly includes a flapper having a blade section and a flat tab section such that deflection of the tab section causes the blade section to move relative to the orifice of a nozzle to more or less throttle the rate of fluid flow through the nozzle. The flapper-nozzle assembly is rotatable, whereby the angular orientation of the plane of the tab section may be varied with respect to a Y-axis passing through the nozzle. The actuator-arm assembly includes a swizzle stick mounted on a

3,575,193

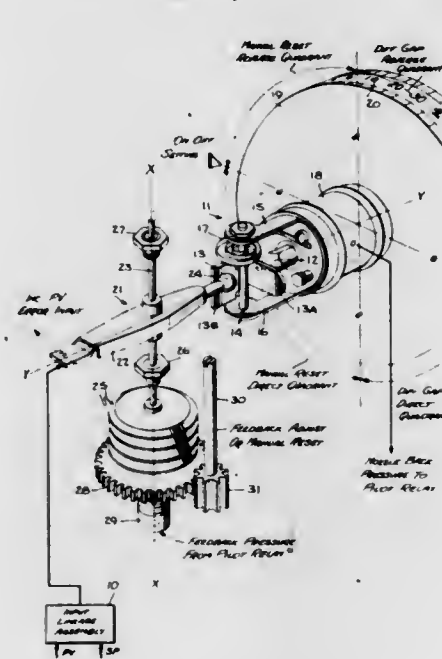
TOTAL SENSING COMBINATION WASHER-DRYER
Anthony Niewyk, Saint Joseph, and Donald E. Janke, Benton Harbor, Mich., assignors to Whirlpool Corporation

Filed May 20, 1968, Ser. No. 730,358

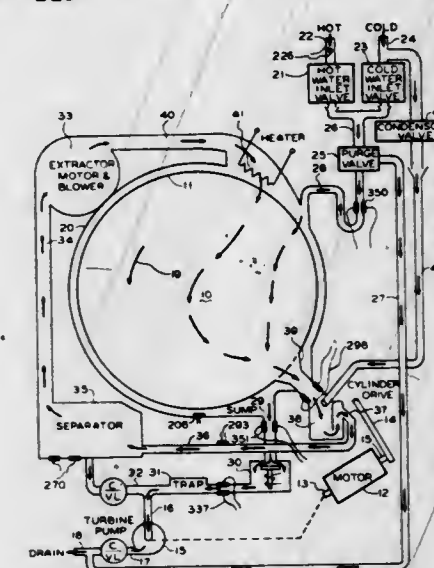
Int. Cl. D06f 39/08; G05d 7/06

U.S. Cl. 137-119

1 Claim



X-axis as a function of a feedback signal motion whereby the position of the ball is the resultant of the error and feedback signals, and the degree to which it deflects the tab section of the flapper depends on the angle of this section with respect to the Y-axis.



A semielectronic control system for a combination washing and drying machine utilizing a solenoid-actuated stepping switch, each successive position of the switch controlling such functions as water fill, agitate, drain, extract, and dry making up the washer-dryer's cycle of operation. Energization of the solenoid is controlled either by RC timer circuitry having a number of selective delays or by circuitry responsive to sensed conditions. The stepping switch selects the appropriate delay in the RC timing circuitry or the proper condition responsive circuit which causes energization of the solenoid to advance the stepping switch to the next position.

3,575,192

VEHICLE HYDRAULIC SYSTEM AND PRESSURE REGULATOR THEREFOR

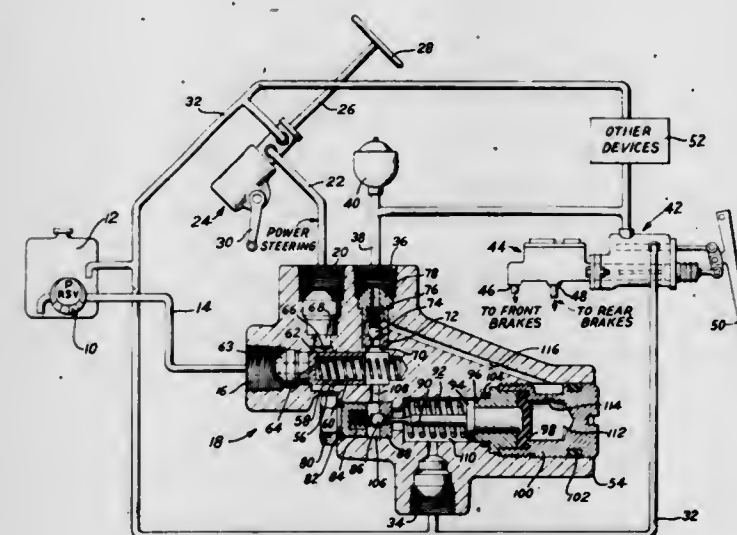
Stanley I. MacDuff, South Bend, Ind., assignor to The Bendix Corporation

Filed Jan. 27, 1969, Ser. No. 794,091

Int. Cl. G05d 11/00

U.S. Cl. 137-116

3 Claims



A hydraulic system for a vehicle having a conventional open-center steering system powered by an engine-driven rotary pump with a valve that enables a small portion of the fluid delivered by the pump to be stored in an accumulator between predetermined pressure limits. The invention visualizes the use of the fluid in the accumulator for such purposes as actuating a power brake booster and/or other devices within the vehicle.

3,575,194

GAS-LIFT VALVE

Everett D. McMurry, Houston, Tex., assignor to McMurry Oil Tools, Inc., Houston, Tex.

Filed July 11, 1969, Ser. No. 841,046

Int. Cl. F04f 1/18

U.S. Cl. 137-155

15 Claims



An improved form of gas-lift valve apparatus is provided, wherein the check valve portion is relocated upstream of the main shutoff components, relative to injection gas input, to eliminate trapping low pressure between the main shutoff and check valve components. Adjustment means is also provided for selectively adjusting the compression force supplied by the load spring on the main valve stem to permit adjustment of the operating pressure range to correspond with borehole depth and other environmental factors.

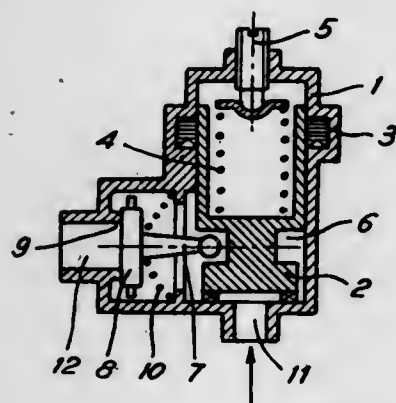
3,575,195

VALVE DEVICE FOR INTERCEPTING FAULTY CIRCUITS IN PNEUMATIC PLANTS WITH A PLURALITY OF CIRCUITS

Giuseppe Alfieri, Milan, Italy, assignor to Fabbrica Italiana
Magnetron S.p.A., Milan, Italy
Filed May 12, 1969, Ser. No. 844,693
Claims priority, application Italy, May 10, 1968, 16321A/68
Int. Cl. F16k 31/12

U.S. Cl. 137-266

4 Claims



A valve device for use in a pneumatic plant having several utilization circuits fed by a single compressor through a single regulator, which device serves to isolate a faulty circuit. The valve device comprises a piston controlled shutoff valve. The piston is spring biased to a valve-closed position and is moved against the spring bias to a valve-open position by normal operating pressure. A drop from normal operating pressure causes the piston to close the valve thereby isolating the faulty circuit.

3,575,196

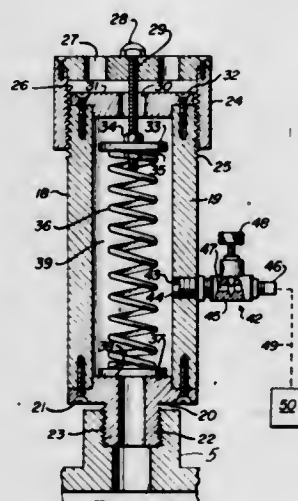
CLOSED EXHAUST DISCHARGE SYSTEM FOR ANESTHESIA MACHINES

Rocco Anthony Marrese, 1024 N. Bellefonte Ave., Oak Park,
Ill., and William T. O'Sullivan, 1323 Asland, River Forest,
Ill.

Filed Jan. 10, 1969, Ser. No. 790,372
Int. Cl. A61m 17/00

U.S. Cl. 137-312

8 Claims



A relief valve for anesthetic gas line which is spring loaded to conventionally discharge overloading anesthetic gas into the surrounding atmosphere, and which further is provided with a valve assembly for connection to a closed system so that the overloading anesthetic gas is retained with the closed system and is not discharged to the surrounding atmosphere. The open system of the valve is maintained by making the spring loaded valve operational, and the closed system is effected by closing the spring loaded valve so that overloading anesthetic gas is directed through the valve assembly into the closed system, preferably a surgical room vacuum line.

3,575,197

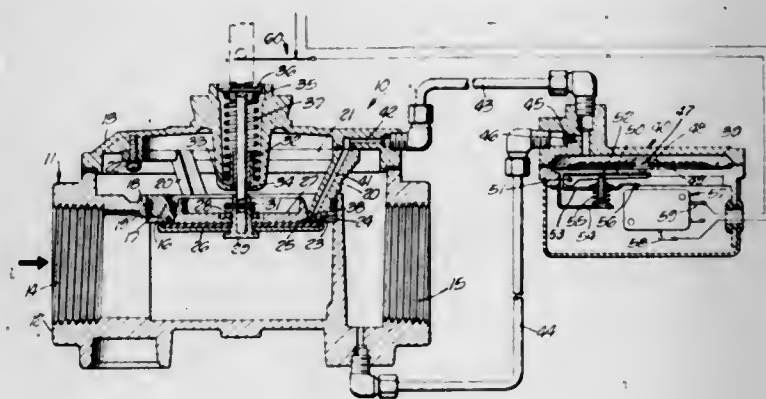
VALVE LEAK DETECTOR

William A. Ray, North Hollywood, Calif., assignor to International Telephone and Telegraph Corporation, New York, N.Y.

Filed June 27, 1969, Ser. No. 837,286
Int. Cl. F16k 25/00, 37/00

U.S. Cl. 137-312

10 Claims



The invention includes, for example, a special main line gas shutoff valve for the main burner of a gas furnace. The valve has two seats. Means are then provided to detect gas leakage into the space between seats. Preferably, a pressure switch is actuated to prevent main burner ignition if a gas leak is detected.

3,575,198

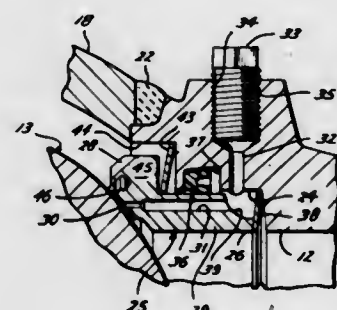
ESTABLISHMENT OF A SEAL BETWEEN CONCENTRIC SURFACES IN A HIGH TEMPERATURE ENVIRONMENT

Frank V. Ellis, Houston, Tex., assignor to Cameron Iron Works, Inc., Houston, Tex.

Filed Nov. 22, 1968, Ser. No. 778,283
Int. Cl. F16k 27/10, 3/36

U.S. Cl. 137-315

5 Claims



A valve comprising a valve body having a central portion in which a ball is rotatably mounted, a tubular extension welded to each side of the central portion, and an annular seat mounted in the flowway through each tubular extension. In the assembly of the valve, the seat is mounted within the flowway during welding of the extension to the central portion of the body. There is a groove in the flowway about each valve seat, and a sealing ring is carried within each groove. The ring is of a material such as Teflon which, if confined against expansion while heated due to its proximity to the weld between the body portions, would reform into a different, nonsealing shape when cooled to ambient temperature. The base of the groove is deeper at one end than at the other and wider than the seal ring, so that said ring is relatively loosely received within the deeper end of the groove and relatively tightly engaged between the seat and the shallower end of the groove. The seal ring is arranged within the deeper end of the groove during welding and then moved into the shallower end thereof when the ring is cooled.

3,575,199

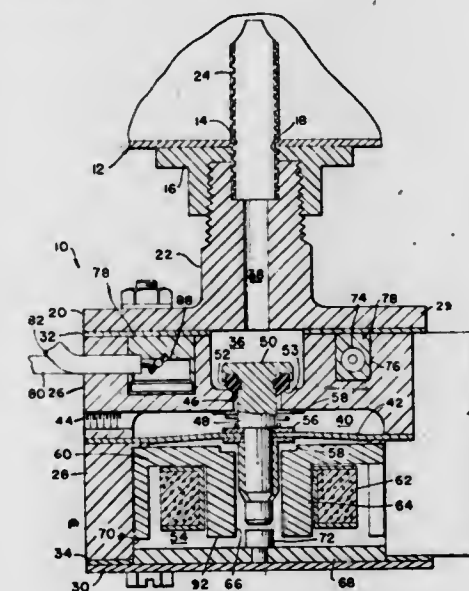
AUTOMATIC CONDENSATE VALVE

Henry C. Beattie, Marine City, Mich., assignor to Reef-Baker Corporation, East Detroit, Mich.
Continuation-in-part of application Ser. No. 753,663, Aug. 19, 1968, now abandoned. This application Nov. 4, 1968, Ser. No. 773,066

Int. Cl. F16k 49/00, 31/06

U.S. Cl. 137-341

4 Claims



The automatic condensate valve includes a housing having a chamber for the accumulation of liquid, and a valve member normally closing an outlet from the chamber. Electromagnetic means are provided including an actuator for opening the valve member at predetermined intervals of time.

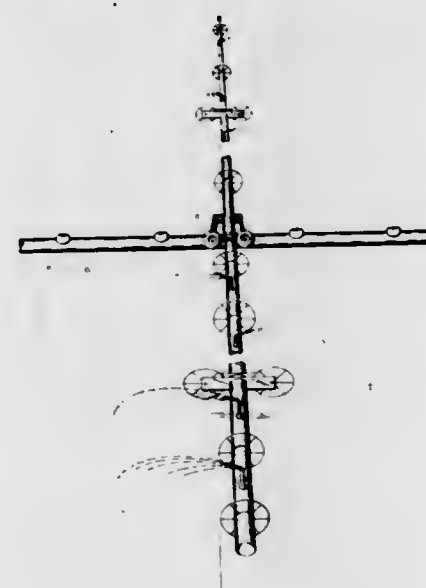
3,575,200

IRRIGATION APPARATUS AND SYSTEM

James G. Imeson, Box 632, Jackson, Wyo. 83001
Filed July 31, 1968, Ser. No. 749,020
Int. Cl. B05b 9/02; E01h 3/02

U.S. Cl. 137-344

8 Claims



An irrigation apparatus or system comprising a self-propelled vehicle with a water delivery pipe for discharging water therethrough to a field to irrigate it, which delivery pipe is provided with capping means for operatively connecting the water delivery pipe to riser bowl means disposed at spaced intervals along a fixed water supply pipe in the field to be irrigated.

3,575,201

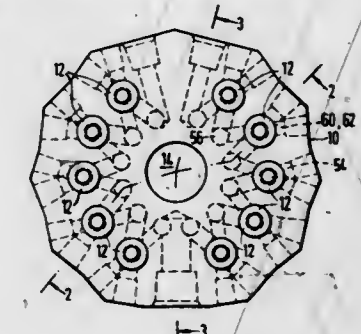
MULTIPLE HYDRAULIC VALVE UNIT

John G. MacDonald, and George S. Morley, Goderich, Ontario, Canada, assignors to The Dominion Road Machinery Co. Limited

Filed Feb. 5, 1969, Ser. No. 796,714
Int. Cl. E01h 1/00

U.S. Cl. 137-352

2 Claims



The control valve is for use primarily in vehicles such as motor graders and has a valve body with a central aperture surrounding the steering shaft. The valve body has a number of chambers, each containing an individual valve spool operated by a manual lever, each valve spool having a pair of necked portions with end lands and a middle land. Each chamber has an inlet port and, inward of the end lands, a pair of exit ports which are connected by passages in the valve body to the inlet port of the next valve chamber. Each chamber also has a pair of cylinder ports, inward of the exit ports, adapted for connection to a double-acting pressure cylinder through a conventional lock valve. Movement in either direction of a selected valve spool from the neutral position where fluid is directed equally to the exit ports causes one of the end lands to close the nearest exit port, and the middle land then directs fluid out through the cylinder port located adjacent to the closed exit port into the cylinder and back through the other cylinder port, then through the other exit port into the passage and to the next valve chamber. A particular feature of the valve body is that all the ports and passages in the valve body may be formed of connecting holes drilled from the exterior surface of the valve body.

3,575,202

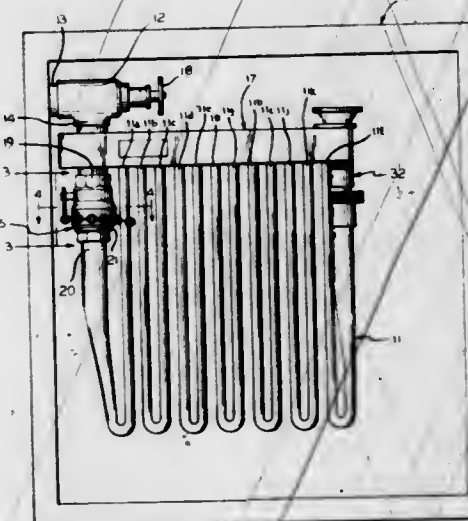
HOSE RACK SAFETY VALVE DEVICE

Joseph J. Turek, Riverside, Ill., assignor to W. D. Allen Manufacturing Co., Broadview, Ill.

Filed Aug. 14, 1969, Ser. No. 850,192
Int. Cl. A62c 35/20

U.S. Cl. 137-355.18

5 Claims



A safety valve device for use with fire hose mounted on a rack to control the water supply to the hose, wherein following removal of the hose from the rack and jerking of the last part of the hose therefrom pulls a chain connected to the safety valve for opening same to connect the water supply to the hose.

3,575,203

PRESSURE REGULATOR DEVICE

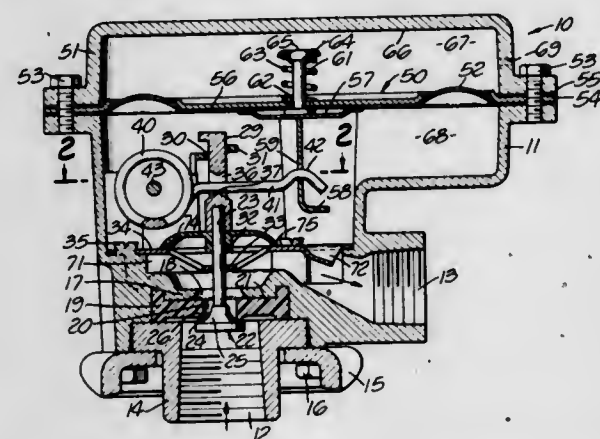
Dwight N. Johnson, Anaheim, Calif., assignor to The Singer Company

Filed Apr. 1, 1968, Ser. No. 717,790

Int. Cl. F16k 17/34, 15/14

U.S. Cl. 137-484.8

11 Claims



A fluid pressure regulator employs a flexible disc with a central passage, together with an axially movable nonresilient valve member in the passage to control flow through the passage as the disc flexes under changes in differential pressure. A coil torsion spring has a laterally projecting arm connected to the valve member and to a flexible diaphragm assembly responsive to pressure at the outlet of the regulator device. A pressure-sensitive limiter device cooperates with the valve member to control pressure reduction under the diaphragm assembly to a value below outlet pressure to make up for loss in reference spring force as the regulator strokes open.

3,575,204

FAIL-SAFE ASSEMBLY FOR GAS-LIFT PRODUCTION SYSTEMS

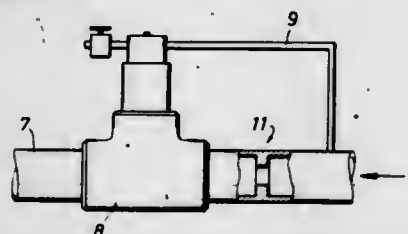
Everett D. McMurry, Houston, Tex., assignor to McMurry Oil Tools, Inc., Houston, Tex.

Filed July 22, 1969, Ser. No. 843,698

Int. Cl. F16k 17/30

U.S. Cl. 137-498

11 Claims



A fail-safe system is provided for use with gas-lift production of oil from a well, including a novel blocking valve actuable to interrupt gas injection in response to an excessive pressure differential in the injection line. In particular, the valve stem in the blocking valve is spring-loaded open and is also arranged to be urged open by the low pressure side of a differential upstream in the flow line. A pneumatic piston is arranged to urge the stem into the valve seat by the high pressure side of the differential, but the spring is selected to exceed the normally expected differential between the low and high pressures.

3,575,205

PRESSURE REGULATOR CONSTRUCTION

Michael John Caparone, Arcadia, Calif., and Theodore John Dykzeul, Rolling Hills, Calif., assignors to Robertshaw Controls Company, Richmond, Va.

Original application Oct. 22, 1965, Ser. No. 509,675, now Patent No. 3,441,049, dated Apr. 29, 1969, Original application Aug. 6, 1962, Ser. No. 214,903. Divided and this application Jan. 2, 1969, Ser. No. 800,319

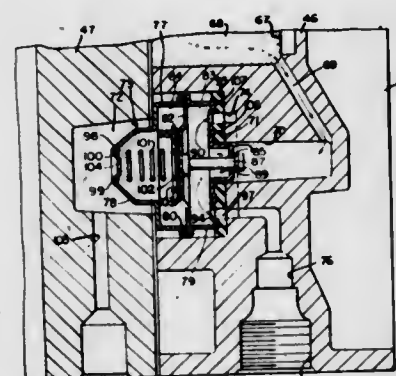
Int. Cl. F16k 31/365

U.S. Cl. 137-505.41

3 Claims

This disclosure relates to a self-contained pressure regulator that can be readily disposed in a housing means against a

surface thereof having an inlet and an outlet respectively disposed in fluid communication with an inlet means and an outlet means of a pressure regulator, the pressure regulator comprising a cup-shaped casing having its closed end provided with its inlet means and outlet means and having its



opened end turned over to secure a flexible diaphragm thereto that cooperates with the casing to define a chamber that is in fluid communication with the inlet means and outlet means thereof while carrying a valve member that controls the inlet means thereof.

3,575,206

EXHALATION DEVICE FOR BREATHING MASK

Paul Ulmann, Bagnols-sur-Ceze, France, assignor to Commissariat A L'Energie Atomique, Paris, France

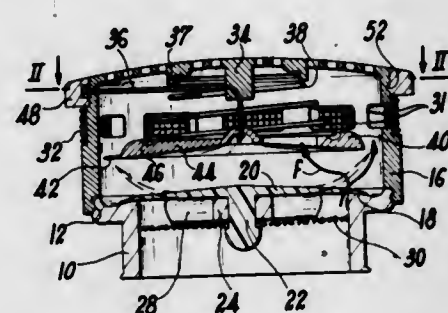
Filed July 7, 1969, Ser. No. 839,243

Claims priority, application France, July 11, 1968, 158,752

Int. Cl. A62b 23/02

U.S. Cl. 137-529

6 Claims



An exhalation device for a respiratory mask comprises a valve member which is biased toward its seat by its own resiliency and by additional spring means which may optionally be rendered inoperative by a releasing mechanism. The mechanism comprises a manually actuatable member such as a control ring, knob or lever movable on the canister of the device to a position where a flexible cord connected to the member exerts on the additional spring a force which prevents it from acting on the valve member.

3,575,207

PROPORTIONING VALVE

John A. Denner, West Roxbury, and Robert D. Reis, Hingham, Mass., assignors to United Electric Controls Company, Watertown, Mass.

Filed Oct. 7, 1968, Ser. No. 765,423

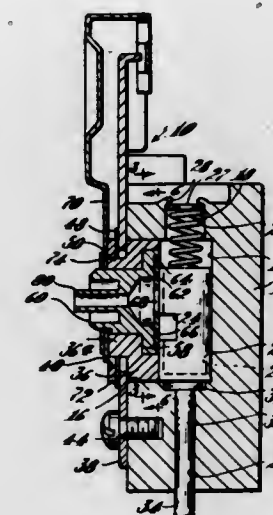
Int. Cl. F16k 3/02; F25b 41/04

U.S. Cl. 137-556

12 Claims

A proportioning valve for use in a control system for vary-

ing the range of control and the level of operation within the with the output signals from the said fluid amplifiers. Also disclosed are a unique fluidic function generator for provid-



3,575,208

WATER-DISTRIBUTING TAP

Claude Urban, Buvignes 27, Pepingen, Belgium

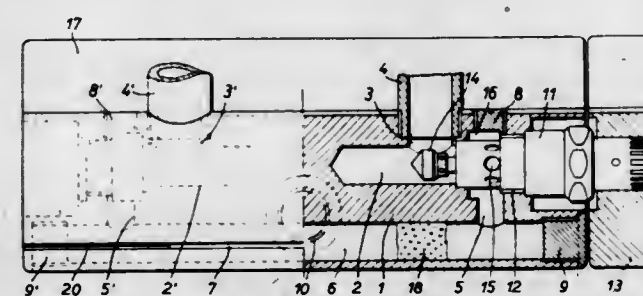
Filed May 6, 1969, Ser. No. 822,131

Claims priority, application Belgium, May 17, 1968, 58607

Int. Cl. F16k 11/22

U.S. Cl. 137-606

15 Claims



The tap comprises a body of constant profile with a first longitudinal bore closed at both ends and connected to a water outlet preferably formed by a longitudinal slot in said bore, and with a second longitudinal bore parallel thereto, which is connected by a transverse passage to a water supply, is closed at one end and has a valve assembly arranged axially within its other end and provided with a handle located at the end of the tap body to control the communication between the second longitudinal bore and a transverse passage connecting it to the first longitudinal bore.

3,575,209

FLUIDIC POSITION LIMIT CONTROL

Howard B. Kast, Fairfield, Ohio, assignor to General Electric Company

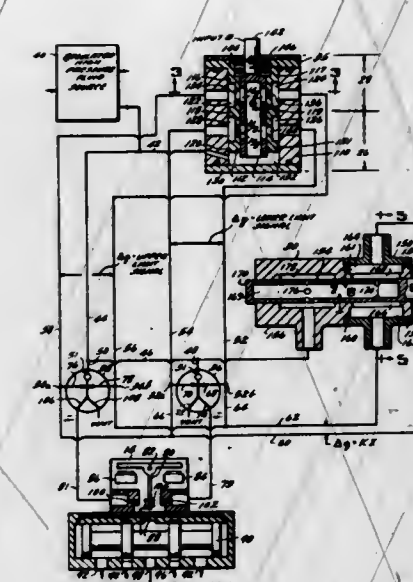
Filed Feb. 24, 1969, Ser. No. 801,290

Int. Cl. F16k 11/14; F15c 3/00

U.S. Cl. 137-609

16 Claims

A position limit control for incorporation into a feedback control system is disclosed which includes an actuator for positioning a control element and wherein it is desirable to provide variable limits on the minimum and maximum position of the actuator. The position limit control comprises function generators for providing fluidic upper limit and lower limit signals, a feedback transducer for providing a fluidic signal proportional to actuator position, means for placing the actuator position signal and the lower limit signal in opposition with each other across the control ports of a first fluid amplifier, means for placing the actuator position signal and the upper limit position signal in opposition with each other across the control ports of the second fluid amplifier, and means for overriding the closed loop control system



3,575,210

AUTOMATIC REFILL DEVICE HAVING FLUIDICALLY OPERATED CONTROL

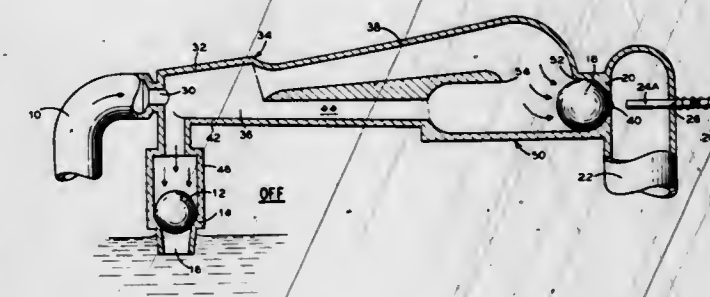
Theodore J. Fussell, Bound Brook, N.J., assignor to American Standard Inc., New York, N.Y.

Filed Oct. 28, 1968, Ser. No. 771,064

Int. Cl. F17d 1/00; F15c 3/06

U.S. Cl. 137-608

16 Claims



A refill mechanism, for example, a water closet tank refill apparatus, having a valve which maintains itself in the "on" position once the fluid flow starts and switches to the "off" position in response to the attainment of a predetermined liquid level.

3,575,211

PNEUMATIC CONTROL SYSTEM AND RELAY VALVE CONSTRUCTION THEREFOR OR THE LIKE

Joseph P. Wagner, Knoxville, Tenn., assignor to Robertshaw Control Company, Richmond, Va.

Filed June 23, 1969, Ser. No. 835,395

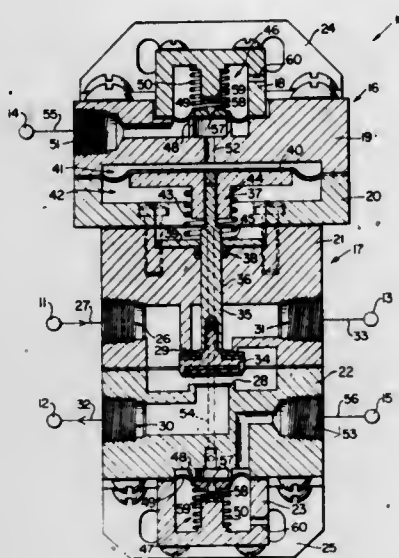
Int. Cl. F16k 31/365

U.S. Cl. 137-625.5

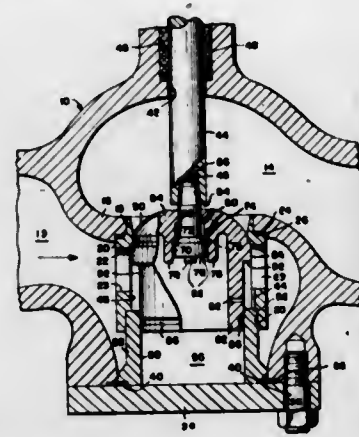
8 Claims

A relay valve construction comprising a housing means having an inlet and a pair of outlets respectively interconnected to the inlet by a pair of valve seats controlled in an alternate manner by a valve member interconnected to a diaphragm means which is normally biased to one position thereof by a spring means and is adapted to be moved to another position thereof by a first pilot valve means directing a pilot pressure signal against one side of the diaphragm means, a second pilot valve means being provided for direct-

ing a canceling pilot pressure signal against the other side of the diaphragm means to move the same back to its one position downstream side of the main valve member and a balancing chamber on the upstream side of the main valve member to



balance the pressures across the main valve member and permit ease of movement thereof.



3,575,214
INSULATED HANGER ASSEMBLY
Jerome E. Bindel, 6208 Meadowbrook Ave., Cleveland, Ohio
Filed June 12, 1969, Ser. No. 832,595
Int. Cl. F16l 3/08

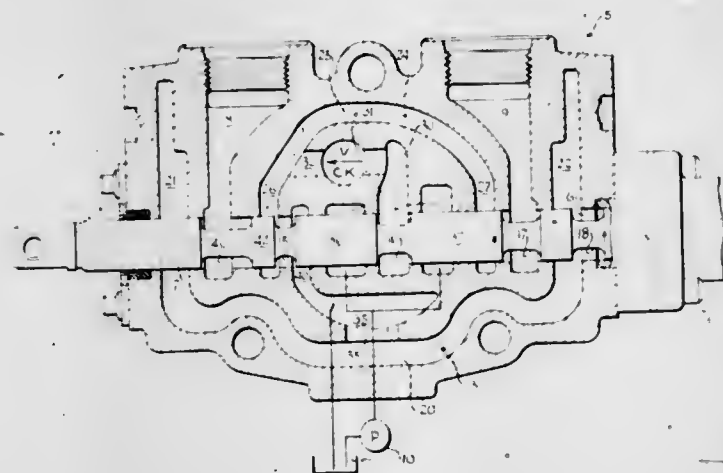
U.S. Cl. 138—107

9 Claims

tion in opposition to the force of the first-named pilot signal to thereby cancel the effect thereof.

3,575,212
LEAKAGE CONTROL FOR CLOSED CENTER VALVES
Raud A. Wilke, Brookfield, Wis., assignor to Koehring Company, Milwaukee, Wis.
Filed Nov. 3, 1969, Ser. No. 873,521
Int. Cl. F16k 11/07
U.S. Cl. 137—625.69

18 Claims



A hydraulic control valve wherein pressure fluid which leaks along the exterior of the movable valve element from a high pressure inlet zone is intercepted before it reaches any service passage of the valve and conducted along a path externally of the valve element to a low pressure return passage in the valve body.

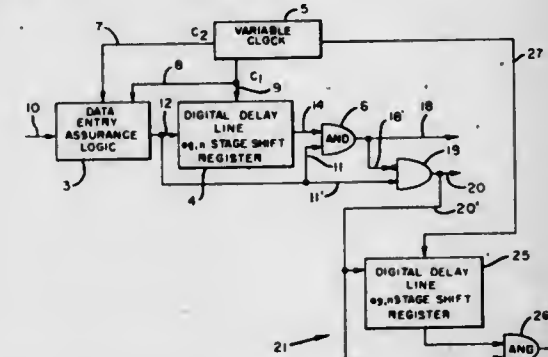
3,575,213
CONTROL VALVES WITH BALANCED ACTION
Ira H. Schnall, Lake City, Pa., assignor to Blaw-Knox Company, Pittsburgh, Pa.
Filed Oct. 4, 1968, Ser. No. 765,141
Int. Cl. F16k 11/16

U.S. Cl. 137—630.13

8 Claims

A control valve having a balanced action whereby a small valve is operable to provide communication between the

This system consists of a clock generator which controls the rate at which pulses of an incident pulse train are advanced through a shift register. The input to and the output of the shift register are logically combined in an AND gate.



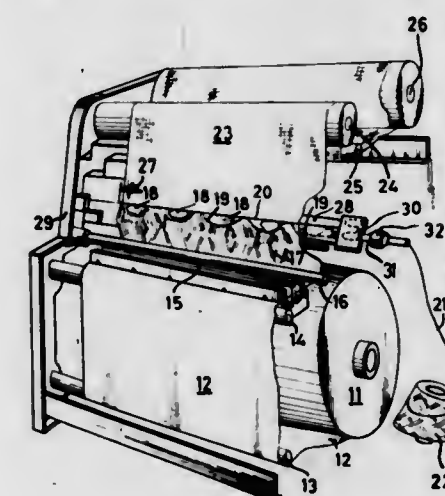
3,575,215
PULSE TRAIN EXTRACTOR SYSTEM
Ronald J. Boddy, Monte Sereno, Calif., assignor to Sylvania Electric Products Inc.
Filed Sept. 30, 1968, Ser. No. 763,675
Int. Cl. H03k 13/00
U.S. Cl. 328—139

5 Claims

When the clock frequency is adjusted to be related to the pulse repetition frequency (PRF) of the pulses so that a pulse is in the last stage of the shift register at the same time that a succeeding pulse is received at the input thereof, the AND gate produces an output pulse. This operation is repetitive resulting in extraction of the pulse train.

3,575,216
DEVICE FOR FORMING COILS OF THREAD
Edgar H. Strauss, Ruti, Zurich, Switzerland, assignor to Ruti Machinery Works Ltd., formerly Caspar Honegger, Ruti, Switzerland
Filed Apr. 23, 1969, Ser. No. 818,737
Claims priority, application Switzerland, Apr. 30, 1968, 6442/68
Int. Cl. D03d 47/26
U.S. Cl. 139—12

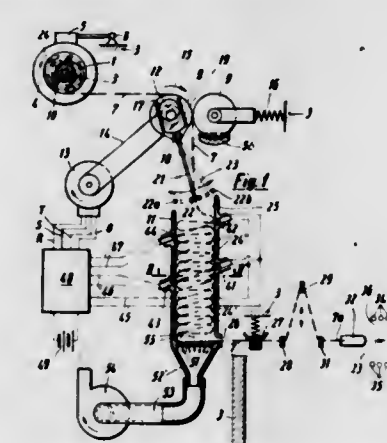
16 Claims



A device for forming coils of thread of a predetermined length on a loom, which includes a coiling element, a rotor for winding a thread around the coiling element to form coils of the thread thereon, the coiling element being mounted to rotate on the rotor, a retaining arrangement for preventing rotation of the coiling element and a means for periodically displacing the coils of thread along the coiling element. The retaining arrangement has two separate retaining means which retain and release the coiling element in a mutually alternating manner so that during the displacement of the coils over the retaining zone of one retaining means, it is positioned or moved away from its retaining zone and the other retaining means is positioned to retain the element.

3,575,217
DEVICE FOR STORING WEFT MATERIAL IN WEAVING MACHINES
Erwin Pfarrwaller, Winterthur, Switzerland, assignor to Sulzer Brothers, Ltd., Winterthur, Switzerland
Filed Mar. 19, 1969, Ser. No. 808,396
Claims priority, application Switzerland, Mar. 21, 1968, 4209/68
Int. Cl. D03d 47/34
U.S. Cl. 139—122

21 Claims

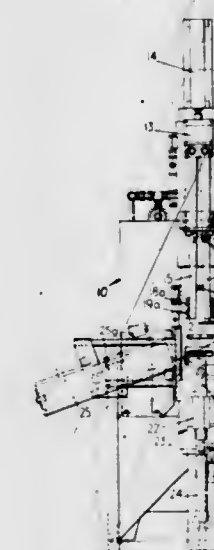


The storage container is situated between the bobbin and the shed of the weaving machine to permit laying up of the

weft material for subsequent picking into the shed. The container can be vertically arranged or curved and can be subjected to an internal airstream for guiding of the weft material through the box.

3,575,218
MACHINES FOR FORMING WINDINGS FOR USE IN DYNAMO ELECTRIC MACHINES
Kenneth Preece, Solihull, England, assignor to Joseph Lucas (Industries) Limited, Birmingham, England
Continuation-in-part of application Ser. No. 628,054, Apr. 3, 1967, now abandoned, which is a continuation-in-part of application Ser. No. 443,821, Mar. 30, 1965, now Patent No. 3,328,617. This application May 6, 1968, Ser. No. 726,802
Int. Cl. B21f 3/04, 45/00
U.S. Cl. 140—1

26 Claims



A machine for forming a wave-wound winding from conductive strip includes a forming station having a first set of fingers engageable with one axial end of a substantially helically wound coil of conductive strip at equidistantly spaced points around the coil. The turns of the coil are insulated from one another, and a second set of fingers is engageable with the other axial end of the coil at points equidistantly spaced from one another and from the points at which the coil is engaged by the first set of fingers. The fingers of each set are urged apart from one another by resilient means to positions in which they can engage the coil, and means is provided for moving the sets of fingers relatively towards or away from one another in the direction of the axis of the coil to bend the coil to form a wave-wound winding. The fingers of each set are mounted so as to permit inward movement of each finger against the action of said resilient means as the coil is bent, and the machine further includes means for returning the sets of fingers to their original position when the winding has been formed.

3,575,219
COIL WINDING APPARATUS AND METHOD
Robert J. Eminger, Fort Wayne, Ind., assignor to Essex International, Inc., Fort Wayne, Ind.
Continuation-in-part of application Ser. No. 717,819, Apr. 1, 1968. This application Mar. 19, 1969, Ser. No. 813,798
Int. Cl. B21f 3/04

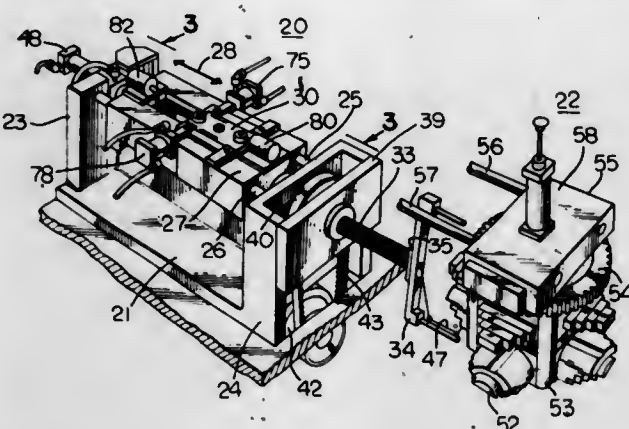
U.S. Cl. 140—92.1

37 Claims

Apparatus for winding coils on a coil form having a plurality of steps of progressively smaller size. A flyer is provided mounted on a shaft for winding an elongated strand on the steps to form the coils. A first support is provided for rotatably supporting the shaft and a drive is coupled to the shaft for rotating the same thereby to rotate the flyer. A second support is provided for supporting the first support for longitudinal movement parallel with the axis of the shaft. A first actuator is provided on the second support operably connected to the first support for longitudinally moving the first support and the shaft so as to position the flyer in winding relationship with the coil form steps. A second actuator is

provided operably connected to the second support for moving the same longitudinally thereby to move the first support

through which charging and venting occurs simultaneously, featuring a thermoplastic inner, movable member, characterized by toughness, retention of shape under stress, springi-



and the shaft so as to traverse the flyer with respect to the coil form.

3,575,220

APPARATUS FOR DISPENSING LIQUID SAMPLE

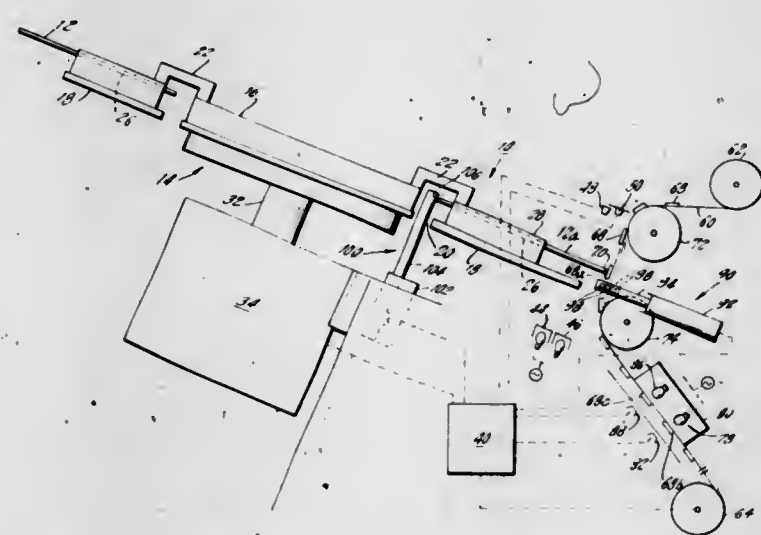
Robert Davis, Far Rockaway; Theodore Shlisky, Bayside, N.Y.; John Silverman, Hempstead, N.Y., and William Pipa, New Hyde Park, N.Y., assignors to Scientific Industries, Inc., Hempstead, N.Y.

Filed Aug. 12, 1968, Ser. No. 751,816

Int. Cl. B65b 43/50; B67c 3/00

U.S. Cl. 141-130

20 Claims



A concentrically rotatable circular disc having a plurality of spaced radially outwardly facing capillaries disposed on it; a receiving means, e.g., an elongated tape, to receive the contents of each of the capillaries in turn; each capillary being shifted, in turn, to a dispensing position where its contents may be blown out of the capillary onto the receiving means; and shifting means for shifting the receiving means toward and away from each capillary after the capillary has moved to its dispensing position, so that the contents of the capillary may be transferred to the receiving means; and timing and coordinating means for coordinating the movement of the receiving means with the movement of the disc supporting the capillaries and with the blower for emptying the capillaries.

3,575,221

GAS LIGHTER FILLING VALVE

Soichi Mochizuki, Tokyo; Yoshio Kanamaru, Chiba-Ken, and Tamotsu Kuroiwa, Tokyo, Japan, assignors to Japan Gas Lighter Association, Tokyo, Japan

Filed Mar. 28, 1969, Ser. No. 811,391

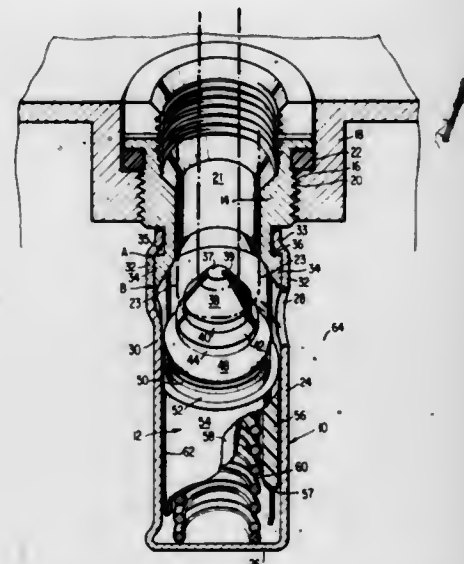
Claims priority, application Japan, Nov. 9, 1968, 43/81677; 43/81678

Int. Cl. F23q 2/52

U.S. Cl. 141-295

2 Claims

A gas lighter filling valve capable of manufacture by mass production techniques and provided with a single passageway



ness and longterm stability, and provided with a furrow for jetting charging fuel into the lighter reservoir, together with means for precisely aligning the inner, movable member within its surrounding outer, stationary member.

3,575,222

TREE CUTTING APPARATUS

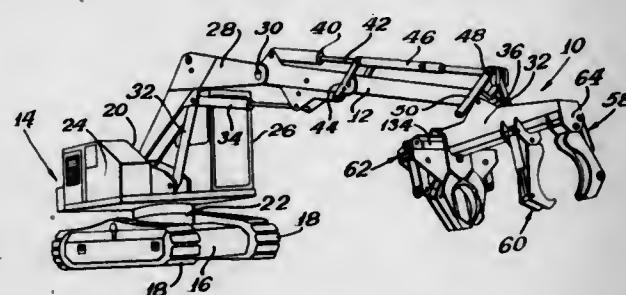
Frank J. Tucek, Wausau, Wis., assignor to Drott Manufacturing Corporation

Filed Dec. 6, 1968, Ser. No. 781,899

Int. Cl. A01g 23/02

U.S. Cl. 144-34

10 Claims



Apparatus for cutting trees. The apparatus includes a support frame. A first arm is pivotally connected to the upper portion of the frame for engaging one side of a tree. A tree-engaging member is fixedly secured to the lower portion of the support frame and includes first and second outwardly extending tree-engaging portions. Means are provided for moving the first arm into spaced alignment with the first tree-engaging portion. Tree-cutting means are connected to the lower portion of the support frame. A second arm is pivotally connected to the support frame intermediate the first arm and the tree-engaging member for engaging the other side of the tree. Means are provided for driving the second arm against the other side of the tree and for applying constant pressure thereto before, during and after cutting the tree so as to maintain the tree under control of the tree-cutting apparatus at all times.

3,575,223

ELECTRICALLY DRIVEN JUICE EXTRACTOR

Gerhard Hickel, Frankfurt, Main, and Manfred Michaelis, Langen, Germany, assignors to Braun Aktiengesellschaft, Frankfurt, Main, Germany

Filed June 19, 1968, Ser. No. 738,253

Claims priority, application Germany, June 23, 1967, B93150

Int. Cl. A47j 19/02

U.S. Cl. 146-3

10 Claims

A juicer includes an electromotor having a rotatable drive shaft. A smaller first conical extracting member provided

with external ribs is connected with the drive shaft for rotation thereby. A removable larger second conical extracting member provided with external ribs is telescopic over the first extracting member to be connected therewith for rotation. The second extracting member is connected with the first extracting member if larger quantities of juice are to be extracted. Wall means defines an annular channel-shaped

outlet at its lower end with means for elevating the hopper to the feed position, connecting the discharge outlet to the machine inlet and control means for starting and stopping the drive motor for the emulsifier associated with the feeding of the material from the hopper.

3,575,225

STERILE SPECIMEN CONTAINER FOR ATTACHMENT TO A SURGICAL TABLE AND FOR OTHER USES

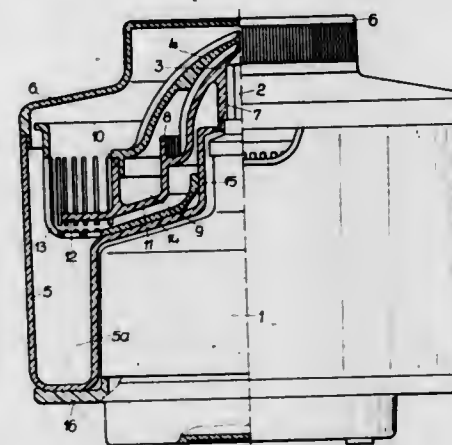
Jane Curtze Muhelm, 8601 Sundale Drive, Silver Spring, Md.

Filed Sept. 12, 1969, Ser. No. 857,408

Int. Cl. A61b 19/00; A47k 11/12; B65d 33/16

U.S. Cl. 150-8

13 Claims



first compartment arranged so that juice extracted by the first extracting member is collected therein, and a second compartment arranged either to receive juice extracted by the second extracting member when the same is connected with the first extracting member and is in use or to receive juice extracted from the first extracting member when the first receptacle is overflowing.

3,575,224

EMULSIFYING AND DEAERATING APPARATUS FOR SAUSAGE BATTER AND THE LIKE

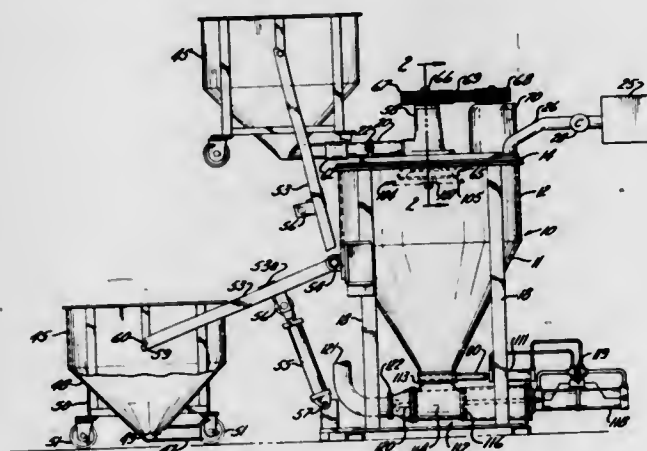
Alvin W. Hughes, Bensenville, Ill., assignor to A. W. Hughes Company, Inc., Addison, Ill.

Filed Sept. 12, 1968, Ser. No. 759,432

Int. Cl. B02c 18/00

U.S. Cl. 146-192

9 Claims



Apparatus for deaerating sausage batter and the like either alone or in combination with emulsifying treatment of the product where means is provided for centrifugally separating and removing unwanted foreign objects from the sausage batter incident to the deaeration thereof. An emulsifier assembly for deaerating apparatus having a rotatable sleeve including radially inwardly extending impeller vanes for rapidly imparting rotation to the batter and feeding it through the emulsifier. A rotating attenuator receives the batter ejected from the emulsifier and centrifugally thins out the batter for contact with the vacuum atmosphere.

Deaerating apparatus having a piston-type discharge pump at the lower end of the machine which alternately reciprocates with a sliding valve arrangement so that material is pumped out of the vacuum chamber in a positive, continuous manner. A feedhopper arrangement having a discharge

A heat-resistant, sterile specimen container having a rigid handle, a rigid hinged rim, and a flexible, transparent, graduated bag which is used as a collection and storage receptacle in surgery. The container may also be used in cooking prepackaged frozen foods. The receptacle bag portion is made of pliable heat-resistant plastic. The handle and rim support are made of hard heat-resistant plastic or of metal or of fiberboard.

3,575,226

ENSEMBLE-MATCHING HANDBAG

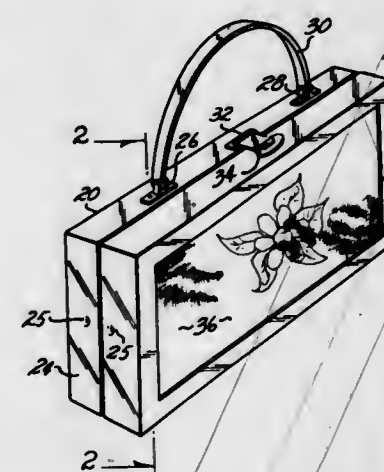
Betty M. Chapman, 15 Sherril Lane, Redlands, Calif. 92373

Filed Sept. 24, 1968, Ser. No. 762,099

Int. Cl. A45c 3/08

U.S. Cl. 150-28

2 Claims



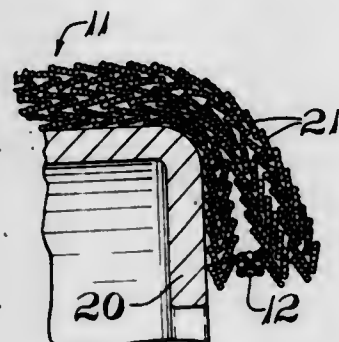
An ensemble-matching handbag having hinged sides which may be covered by multiple patterns or colored segments of similar wearing apparel which are clamped on the sides by surrounding frames that have the opposed clasp elements and carrying strap on their upper edges. A cloth tightening and holding side covering of sponge rubber or the like may be used. Interfitting indentations are provided on the sides and surrounding frames for securing these in assembled relation.

3,575,227

PNEUMATIC TIRE AND METHOD OF MAKING SAME
Donald R. Bartley, Cuyahoga Falls, Ohio, assignor to The B.F. Goodrich Company, New York, N.Y.
Filed May 24, 1968, Ser. No. 731,823
Int. Cl. B60c 9/02, 9/12

U.S. Cl. 152—354

5 Claims



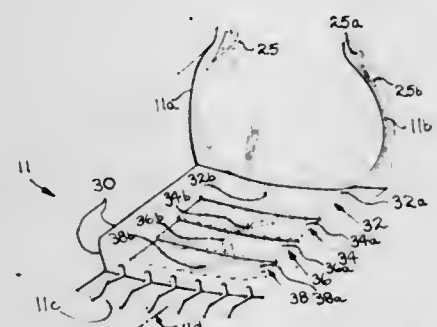
A pneumatic tire of cord-reinforced vulcanized elastomeric material having a carcass formed of a tape of elastomer-covered reinforcing cords wound in a generally geodesic pattern with the beads each being formed of substantially tangentially disposed portions of the tape with an inextensible ring between layers of the tape. The method of making such a tire comprises continuously winding layers of a tape of elastomer-covered cords in a generally geodesic pattern on a tire building drum, applying an inextensible ring to the partially wound tire at either end of the drum and then completing the winding so that the rings are imbedded between layers of the tape.

3,575,228

REINFORCEMENT OF ANNULAR BODIES
Alfred Marzocchi, Cumberland, R.I., assignor to Owens-Corning Fiberglass Corporation
Filed May 17, 1968, Ser. No. 730,139
Int. Cl. B60c 9/06

U.S. Cl. 152—356

13 Claims



An improved tire construction including a yarn reinforcement formed of twisted-together subelements so arranged that the direction of the central slope of the spiral defined by the twist is inclined generally oppositely to the inclination of the yarn or cord body within the annular body.

3,575,229

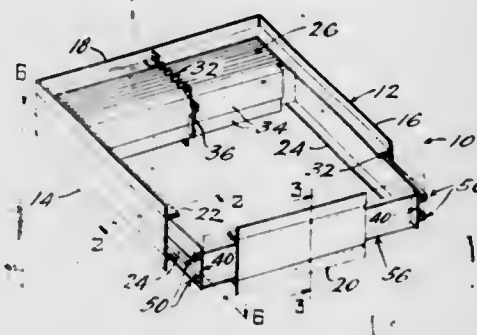
SMOKE SEAL FOR CURTAIN-TYPE FIRE DAMPERS
Raymond L. Alley, Toledo, Ohio, assignor to The American Warming & Ventilating Inc., Toledo, Ohio
Filed Aug. 11, 1969, Ser. No. 848,952
Int. Cl. E05f 15/20

U.S. Cl. 160—1

4 Claims

A smoke seal for a curtain-type fire damper is provided. The seal comprises two metal strips located adjacent the side frame members of the fire damper, each being urged inwardly by a pair of resilient strips therebehind. The extent of inward movement of the strips is restricted by suitable stops

located adjacent one end-frame member of the fire damper. The strips contact the ends of the fire damper blade sections



when they are closed to provide an effective smoke seal therebetween.

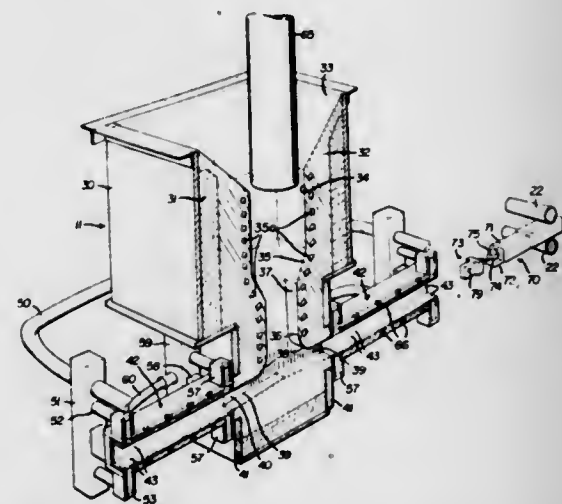
3,575,230

METHOD OF MAKING STEEL

Albert Calderon, 7732 Ragall Parkway, Cleveland, Ohio
Continuation-in-part of application Ser. No. 494,017, Oct. 8, 1965, now abandoned. This application Mar. 7, 1968, Ser. No. 711,282
Int. Cl. B22d 11/10

U.S. Cl. 164—82

25 Claims



This disclosure proposes an improved method of continuous casting of steel or the like metals, especially with respect to the tapping temperatures, the initiation and the maintenance of casting operations. One aspect of such improved method resides in being able to successfully cast with furnace tapping temperatures which are substantially lower than the temperatures required to continuously cast conventionally. This is accomplished by pouring metal directly into a relatively small composite refractory reservoir having a chilling mold in close proximity thereof and whose refractory portions are intensely preheated to prevent premature solidification of molten metal in the refractory portions particularly in the area adjoining said chilling mold. It is essential that the heat-sensitive chilling mold not be subjected to the intense heat necessary for preheating the refractory. Specific procedures are set forth to protect the chilling mold, e.g. by cooling within defined temperature limits. Another aspect of the instant method resides in controlling the point at which the initial skin formation occurs, thereby preventing solidification of molten metal in the refractory portions of the apparatus. This is accomplished by determining the location of initial shell formation with the confines of the chilling mold and varying the speed at which the solidified shape is withdrawn from the chilling mold to retain the location of initial shell formation within the chilling mold.

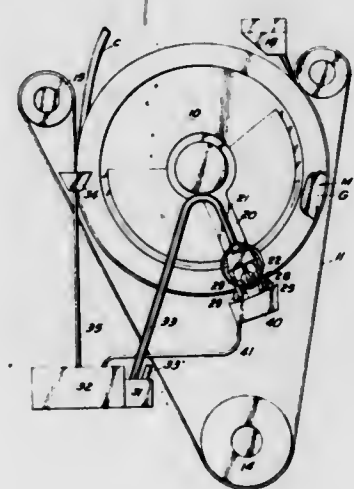
3,575,231

METHOD AND APPARATUS FOR INJECTING THERMAL CONDUCTING IN A BAND WHEEL CONTINUOUS CASTING SHRINKAGE GAP

George E. Lenaeus, Carrollton, Ga., assignor to Southwire Company, Carrollton, Ga.
Filed Jan. 23, 1969, Ser. No. 793,354
Claims priority, application Belgium, Jan. 25, 1968, 53,803
Int. Cl. B22d 11/06

U.S. Cl. 164—87

7 Claims



A continuous casting method which includes solidifying a molten metal in a casting wheel and injecting a heat-conducting medium into the gap formed between the metal and the casting wheel as a result of the solidification of the metal. Casting apparatus is also disclosed and includes a casting wheel having a peripheral groove with a portion closed by an endless band to form a mold and injecting means for injecting a heat-conducting medium into the mold to fill the gap formed between the metal in the mold and the casting wheel when the metal shrinks during its solidification.

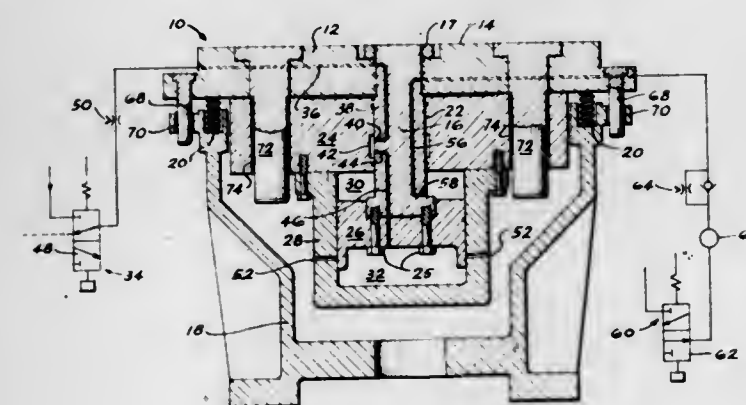
3,575,232

FOUNDRY MOLD-MAKING APPARATUS

Lester C. Young, Cleveland, Ohio, assignor to Spo Incorporated, Cleveland, Ohio
Filed Apr. 29, 1969, Ser. No. 820,239
Int. Cl. B22c 15/02

U.S. Cl. 164—207

8 Claims



Jolting apparatus for compacting sand in a foundry mold, wherein a fluid motor is utilized to rapidly reciprocate a rapper member to impart impact blows to a table supporting the mold pattern.

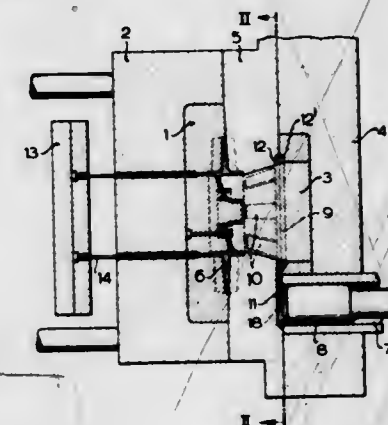
3,575,233

DIECASTING MOLD

Joachim Mahle, Endersbacher Strasse 30, 7000 Stuttgart-Bad Cannstatt, and Walter Hartmann, Dorfgarten strasse 5, 7013 Oeffingen, Germany
Filed Oct. 7, 1968, Ser. No. 765,501
Int. Cl. B22d 17/04

U.S. Cl. 164—312

5 Claims



A separable diecasting mold is composed of a cover support plate to which the die core is attached, an ejector die having a die cavity, and a center plate between the cover support plate and the ejector die through which the core extends. Casting material is supplied under pressure through a groove in the joint between the cover support plate and center plate and leading to channels in the wall of the opening through the center plate, which channels terminate in the die cavity.

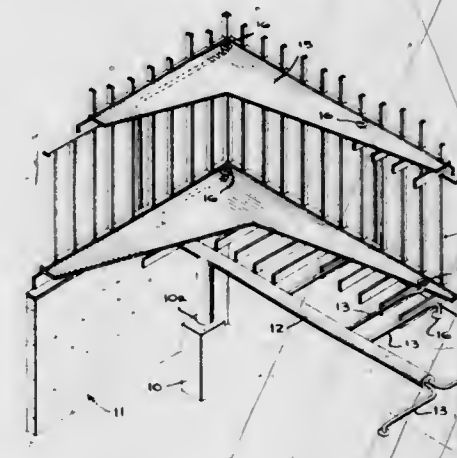
3,575,234

HEATING AND COOLING SYSTEMS

John J. Dieckmann, Rockingham County, Va.
Continuation of application Ser. No. 690,253, Dec. 13, 1967, now abandoned. This application Aug. 22, 1969, Ser. No. 866,052
Int. Cl. F24h 9/08

U.S. Cl. 165—1

12 Claims



A high-velocity ducted air-type heating and/or cooling system wherein heated or cooled conditioned air is introduced into each of the rooms or spaces to be conditioned by a terminal nozzle in each room defining a smooth exit orifice which is free of diffusing or flow disturbing surfaces and is located in a boundary surface of the room, for example, the floor or ceiling. The orifice is directed perpendicular to the surface in which the nozzle is mounted to discharge a smooth unencumbered, sound attenuated, quiet stream of conditioned air a sufficient distance toward the opposite bounding surface to induce intermixing/circulation of room air with the conditioned air in such manner that the entire room becomes a mixing box or chamber. A direct coupled or contiguous sound attenuator is provided immediately upstream of the outlet to permit this high discharge velocity without creating objectional noise.

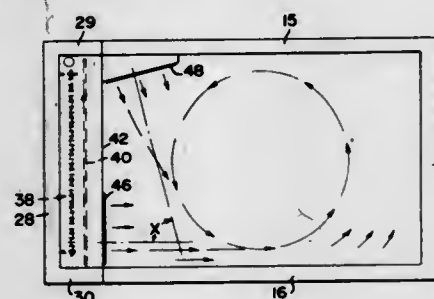
3,575,235

ENVIRONMENTAL GROWTH CHAMBER

Noel Davis, Russell Township, and Thomas F. Vandenberg, Moreland Hills, Ohio, assignors to Integrated Development and Manufacturing Co., Chagrin Falls, Ohio
Filed Sept. 10, 1969, Ser. No. 856,727
Int. Cl. A01g 9/00

U.S. Cl. 165-2

11 Claims



A method and apparatus for assuring uniform, continuous air flow through a growth chamber by supplying the air to the chamber in separate paths to produce an interwoven rotary air flow through the chamber.

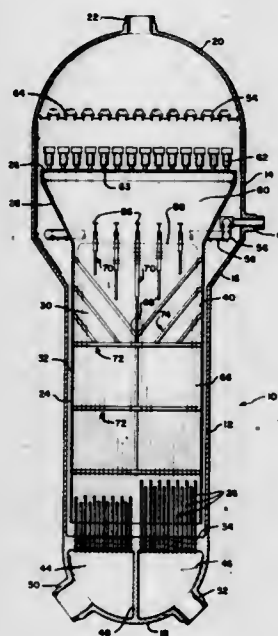
3,575,236

FORMED PLATE TUBE SPACER STRUCTURE

Nicholas D. Romanos, Chattanooga, Tenn., assignor to Combustion Engineering, Inc., Windsor, Conn.
Filed Aug. 13, 1969, Ser. No. 849,701
Int. Cl. F28b 9/00

U.S. Cl. 165-162

26 Claims



Antivibration tube spacer structure for supportingly spacing adjacent tubes of a shell and tube heat exchanger in order to prevent damage to the tubes caused by flow-induced or other mechanically induced vibration. The spacer structure comprises elongated, thin plate members disposed between adjacent tube layers thus to provide engagement at two opposed points on the tubes. Struck out tab projections extending normally from the plate are arranged to engage the tubes on opposite, longitudinally-spaced points that are displaced by 90° from the points of plate engagement.

3,575,237

CLOSEOFF TOOL FOR BORES OR OTHER OPENINGS

Billy C. Malone, Houston, Tex., assignor to Lynes, Inc.
Filed July 10, 1969, Ser. No. 840,805
Int. Cl. E21b 33/127

U.S. Cl. 166-152

28 Claims

A bore or other opening closeoff tool for inclusion in a tubular string which extends within the bore or other opening,

the tool including valve means to close off internally of the tool and tubular string and reinforced inflatable element



means which can be expanded to seal off within the surrounding bore or other opening.

3,575,238

INFLATABLE PACKER

Harold E. Shillander, 4141/2 Central S.E., Albuquerque, N. Mex.

Filed Aug. 4, 1969, Ser. No. 847,060

Int. Cl. E21b 33/127

U.S. Cl. 166-187

2 Claims



An elongated tubular body, connected with a well string in a borehole, telescopically receives a centrally bored mandrel having an annular flange forming a piston slidable in a fluid containing reservoir formed between the wall of the body and mandrel. A dilatible and collapsible member surrounding and connected to the body intermediate its ends defines an inflation chamber communicating with the fluid reservoir. Spring means, surrounding the tubular mandrel, normally urges the mandrel and body in telescopic extended relation.

3,575,239

PROGRESSIVE CENTRALIZER

James R. Solum, Huntington Beach, Calif., assignor to B & W Incorporated, Torrance, Calif.

Filed Apr. 18, 1969, Ser. No. 817,363

Int. Cl. E21b 17/10

U.S. Cl. 166-241

10 Claims

A well pipe centralizer with a plurality of outwardly bowed springs extending between aligned collars adapted to fit the

well pipe wherein the position of some of the spring bows on the collars is longitudinally offset from other spring bows



whereby less than all of the spring bows are engaged simultaneously when forcing the centralizer into a restricted opening.

3,575,240

RECOVERY OF HEAVY OILS BY FRACTURING AND INJECTION OF GAS

Vaughan W. Rhoades, Tulsa, Okla., assignor to Cities Service Oil Company, Tulsa, Okla.

Filed Apr. 25, 1969, Ser. No. 819,434

Int. Cl. E21b 43/18, 43/26

U.S. Cl. 166-263

14 Claims

High-viscosity oil is recovered from subterranean reservoirs by a cyclic process that alternately enhances the mobility of the heavy oil at increasing distances from the production well and recovers the more mobile oil that drains into the vicinity of the production well. The increased mobility of the oil is achieved by the cyclic injection of a gas having a relatively high oil solubility into the reservoir through, and alternately producing the swollen oil from, the production well. The area of the formation contacted by the injection gas is greatly increased by fracturing the oil-bearing formation prior to gas injection. The fracture permits the injected gas to be carried into those areas of the formation not otherwise in immediate communication with the well and enhances the withdrawal of oil by providing a convenient path for the swollen oil to flow through in the formation to the production well.

3,575,241

TRACTOR HYDRAULIC LIFT CONTROL SYSTEM

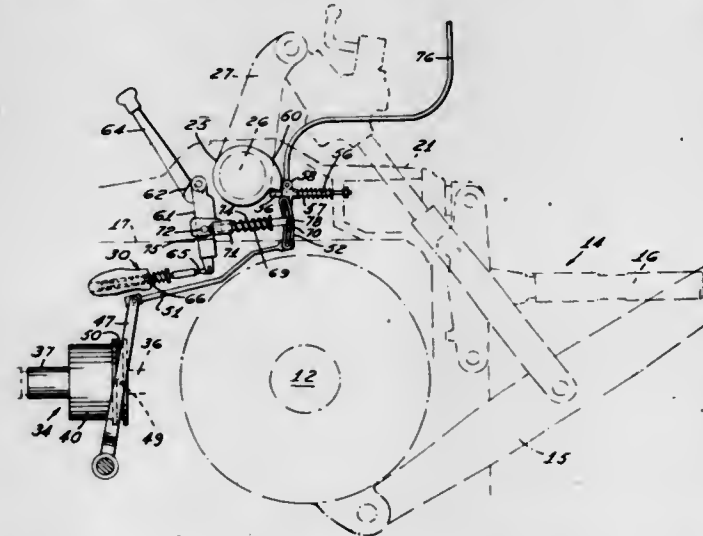
Charles E. McKeon, Birmingham; William F. Lomas, Southfield, and Willard G. Smith, Detroit, Mich., assignors to Ford Motor Company, Dearborn, Mich.

Filed Mar. 30, 1967, Ser. No. 627,136

Int. Cl. A01b 67/00, 63/112

U.S. Cl. 172-3

7 Claims



A tractor is provided with a torque-sensing device in the drive line to the tractor driving wheels to control operation

of an implement hydraulic lift system for raising and lowering an implement as required to maintain a constant torque on the drive line. The system also provides for implement positioning responsive to position of a hand-operated quadrant lever and for positioning responsive to both drive line torque and quadrant lever position.

3,575,242

MARKER LIFT

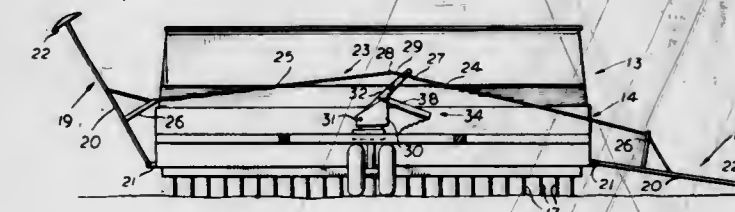
Nils O. Olsson, Ancaster, Ontario, Canada, assignor to International Harvester Company, Chicago, Ill.

Filed Jan. 31, 1969, Ser. No. 795,451

Int. Cl. A01b 35/32

U.S. Cl. 172-130

4 Claims



A flexible cable connecting right- and left-hand markers of an agricultural implement such as a grain drill, is provided with a central balance bar having a limited slidable connection with a swingable lift arm for the markers and having stops engageable with the arm to raise one of the markers and lower the other, the lift arm being operated by a hydraulic cylinder electrically actuated from a remote switch.

3,575,243

FIELD CULTIVATOR

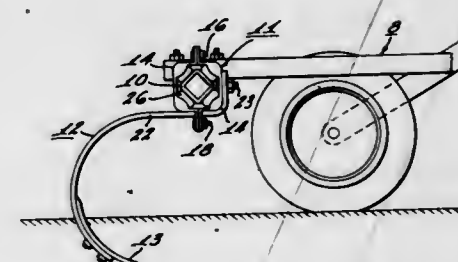
Alexander H. Mark, Brookfield, and Maynard E. Walberg, Waukesha, Wis., assignors to Allis-Chalmers Manufacturing Company, Milwaukee, Wis.

Filed Sept. 11, 1968, Ser. No. 759,154

Int. Cl. A01b 35/24

U.S. Cl. 172-710

4 Claims



A field cultivator equipped with rubber cushions positioned between tool shanks and supporting frames for providing a flexible mounting of the tool shanks permitting the tool shanks to flex in any direction.

3,575,244

HEAD FOR LIQUID EXPLOSIVES

Miron Abramovich Schegolevsky, Moscow, Drovyanaya Ploshad, 9/10, kv.60, U.S.S.R.

Filed June 19, 1968, Ser. No. 738,358

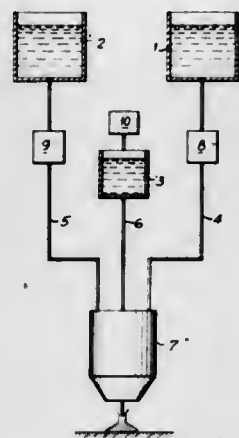
Int. Cl. E21c 21/00, 37/12

U.S. Cl. 175-4.5

2 Claims

A head for liquid explosives primarily intended for rock destruction having channels for the delivery of liquid components and initiator wherein one of the channels for deliver-

ing liquid components and the channel for delivering the initiator converge to form a common outlet channel within the



head, and wherein the supply of the liquid components is continuous while the supply of initiator is effected in pulses.

3,575,245

APPARATUS FOR EXPANDING HOLES

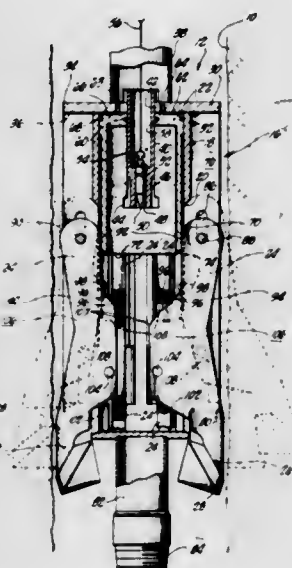
Bruce J. Cordary, Los Alamitos, and Paul J. Arnerich, Fountain Valley, Calif., assignors to The Servco Company, Long Beach, Calif.

Filed Feb. 5, 1969, Ser. No. 796,778

Int. Cl. E21b 43/16

U.S. Cl. 175-268

9 Claims



A hole expander for use in conjunction with well bore-drill strings which has a tool body defining a cylinder, an axially movable piston disposed in the cylinder, and a skirt portion secured to the piston. A plurality of radially arranged arms have one end secured to the tool body and another end adapted to receive cutting tools such as rotary cone cutters or abrasive cutters that are pivotal about axes transverse to an axis of the cylinder and are movable in an axial direction over a predetermined distance. Sides of the arms adjacent the skirt portion have a configuration to engage the skirt portion. When the piston moves axially in response to pressure being applied to the cylinder, the arms pivot outwardly relative to the axis of the cylinders. An intermediate skirt engaging surface of the sides of the arms is angularly inclined relative to the axis of the cylinder and engages an end of the skirt portion. When the arms are farthest removed from the cylinder in an axial direction the intermediate skirt-engaging surfaces of the sides of the arms are disposed adjacent the free ends of the skirt portion of the cylinder and bias the skirt portion, together with the piston, in a direction towards the cylinder. When the cylinder is fully extended a skirt-engaging surface of the arms engages a periphery of the skirt and locks the arms in an outwardly projecting position.

3,575,246

OIL WELL BUMPER SUB

Robert P. Jones, Long Beach, Calif., assignor to Midway Fishing Tool Company, Long Beach, Calif.

Filed May 9, 1969, Ser. No. 823,299

Int. Cl. F21b 1/10, 17/00

U.S. Cl. 175-293

5 Claims



An oil well bumper sub in which an elongate cylindrical body is drivingly connected to a drill string supported mandrel that extends therethrough by a plurality of circumferentially spaced, longitudinally extending rows of balls located within the interior of said body, which balls permit limited longitudinal movement of the mandrel relative to the body. An annulus-shaped space that is defined between the mandrel and body is filled with a flowable lubricant and maintained therein by seals at the ends of the body. The lubricant cooperates with the seals and tends to prevent entry of any foreign matter into the interior of the body whereby the lubricant assures free longitudinal movement of the mandrel relative to the body.

3,575,247

DIAMOND BIT UNIT

Robijn Feenstra, Rijswijk, Netherlands, assignor to Shell Oil Company, New York, N.Y.

Filed July 7, 1969, Ser. No. 839,541

Claims priority, application Great Britain, Mar. 6, 1969, 11886/69

Int. Cl. E21b 9/36, 9/22

U.S. Cl. 175-329

9 Claims



A diamond drill bit unit including a diamond bit, drill collar means operatively associated with said bit, and vibration reducing stabilizing means provided on said drill collar means.

3,575,248

WEIGHING DEVICE

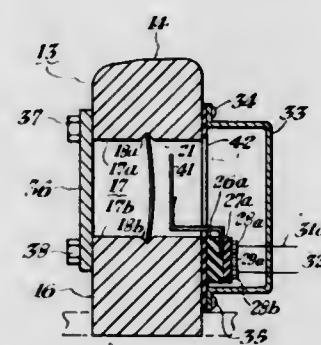
Edward H. Bell, Monongahela, Pa., assignor to Westinghouse Air Brake Company, Swissvale, Pa.

Filed Apr. 14, 1969, Ser. No. 816,006

Int. Cl. G01g 3/12, 19/04

U.S. Cl. 177-163

10 Claims



This invention relates to a weigh rail having a crown, a web, a flange portion and an elongated slot extending transversely through the web portion between the crown and flange portions. A resiliently deformable means is interposed between the upper and lower surfaces of the slot such that deflection of the crown portion produces an orthogonal deflection of the resiliently deformable means with respect to the deflection of the crown portion. A transducing means is cooperatively associated with the resiliently deformable means and is responsive to a deflection in the resiliently deformable means for providing an indication which is directly proportional to the amount of deflection of the crown portion.

3,575,249

SKI-EQUIPPED VEHICLE

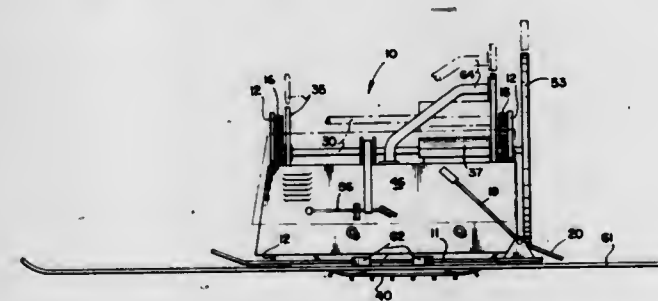
John Raistakka, 1414 S.W. 12th Ave., Portland, Ore. 97201

Filed Apr. 10, 1969, Ser. No. 814,945

Int. Cl. B62m 27/02

U.S. Cl. 180-5

5 Claims



Disclosed in the following specification is a ski-equipped vehicle having a powered continuous belt disposed intermediate a pair of skis and vertically positionable relative to the skis. A framework interconnects the skis and supports in a positionable manner the vehicle body. Rack and pinion means are shown to permit raising of the vehicle body and track. Brake means are disclosed for retaining the body in a fixed elevated position on the framework.

3,575,250

SELF-PROPELLED ELECTRIC VEHICLE AND BATTERY MOUNT

Darwin H. Dykes, Golden, Colo., assignor to Battery Power Unit Co., Inc., Golden, Colo.

Filed Dec. 23, 1968, Ser. No. 786,150

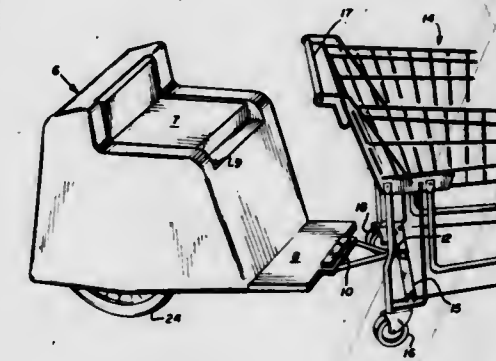
Int. Cl. B62d 59/04

U.S. Cl. 180-11

16 Claims

A self-propelled electric vehicle includes a wheeled frame having a quick connect and disconnect hitch for drivingly connecting the vehicle to a variety of wheeled devices. An individual drive for each of a pair of ground-contacting wheels includes a separate, reversible motor and a power transmission train coupled to each wheel which carries an intumed

extension over which a transmission member is trained. The motors are mounted on a pivotal base and yieldingly urged away from the wheels to maintain tension in the power transmission train during rotation of the wheels by the motors. A mount for the quick replacement of a battery on the vehicle



3,575,251

LIGHTWEIGHT, WRECK-RESISTANT CAR

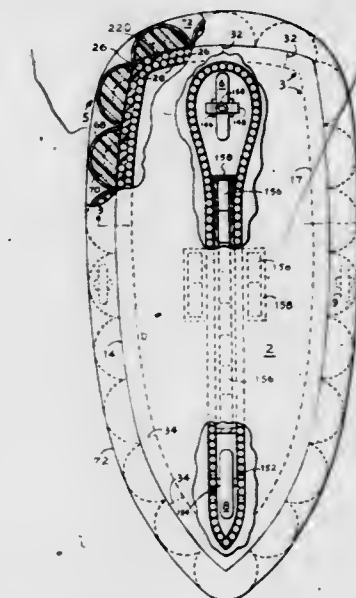
Alvin E. Moore, 916 Beach Blvd., Waveland, Miss. 39576

Filed Feb. 4, 1969, Ser. No. 796,482

Int. Cl. B62k 19/16; B60f 3/00

U.S. Cl. 180-30

30 Claims



A vehicle, especially adapted for land travel, having strong, lightweight walls, comprising thin metal, cylindrical or corrugated cans, between skins, and surrounded by foamed plastic. These receptacles are sealed, thin-walled pipes or tubes; or rows of aligned short cans, end-to-end-glued together. The skins may be: metal sheets, epoxy glued or brazed to the cans; or metallic mesh attached to the cans by brazing or glue and/or bolts, coated with stucco. Optionally, each of the rows may comprise a plurality of aligned cans with adjoining end-caps that are strongly glued together, or a single, elongated, preferably corrugated tube.

This invention pertains to lightweight and strong vehicles. Although its basic structure may be utilized in water-traversing vehicles, it is preferably incorporated in a wheeled vehicle, adapted for use on the land and also optionally in the air and in amphibious operation. One of its features comprises stabilization against roll of a two-wheeled or three-wheeled vehicle by providing balloon-lift approximately above its center of gravity.

3,575,252

VEHICLE WITH AUXILIARY SPEED CONTROL

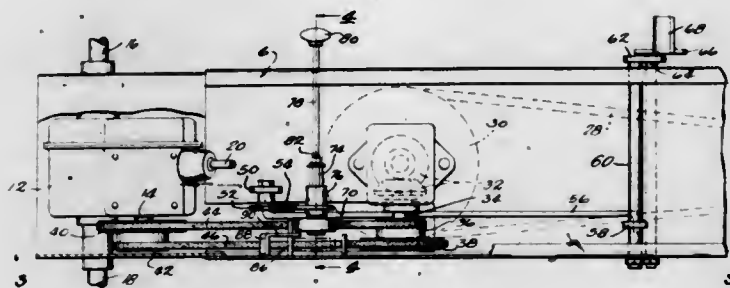
Peter P. Konyha, Brillion, Wis., assignor to Ariens Company, Brillion, Wis.

Filed Mar. 27, 1969, Ser. No. 811,030

Int. Cl. B60k 17/00

U.S. Cl. 180-70

6 Claims



In the drive from a prime mover to a transaxle, different ratios of drive pulleys are selectively available to give varying ranges for each speed for which the transaxle makes provision. High- and low-speed belts are side by side and selectively effective according to the position of a belt tightener which may be lifted from either belt and shifted to registry and engagement with the other.

3,575,253

REAR AXLE ARRANGEMENT FOR MOTOR VEHICLES

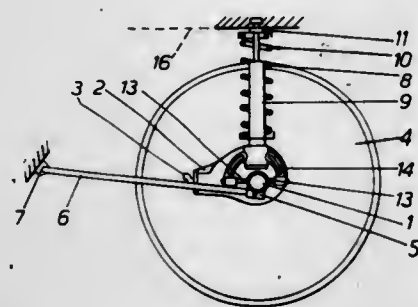
Karl Brumm, Hessen, Germany, assignor to General Motors Corporation, Detroit, Mich.

Continuation of application Ser. No. 708,192, Feb. 26, 1968, now abandoned. This application Aug. 21, 1969, Ser. No. 851,821

Int. Cl. B60g 9/00

U.S. Cl. 180-71

5 Claims



A rigid driven rear axle is connected adjacent each end to the vehicle body by a single longitudinal link and by a spring strut consisting of a helical spring and a telescopic shock absorber. The spring strut is pivotally mounted at one end to the vehicle body and is hingedly connected at its other end to the rear axle by a rigid hinge connection having a pivot axis which is transverse to the axle and is located at or below the level of the axle, the hinge connection thus being such as to permit pivoting of the strut in transverse planes of the vehicle but to form a rigid connection in the longitudinal direction of the vehicle.

3,575,254

STEERING MECHANISM

Laszlo Sipos, Saratoga, Calif., assignor to FMC Corporation, San Jose, Calif.

Filed Feb. 10, 1969, Ser. No. 797,782

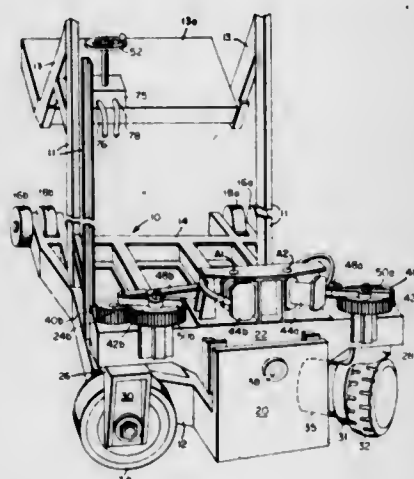
Int. Cl. B62d 5/10

U.S. Cl. 180-79.2

11 Claims

A steering mechanism for turning the front wheels of a four-wheel vehicle selectively in either direction to different angular positions relatively to their neutral positions by simple manipulation of a common control element for both wheels. For this purpose each front wheel is supported from a vertically disposed shaft which is mounted for rotation about an axis extending diametrically of the wheel, and each

shaft carries a gear. Hydraulic cylinders are mounted for rotation about vertical axes at the opposite sides of the plane symmetry between the wheels, and the projecting ends of their piston rods are pivotally connected; and links are pivotally connected between the pivot connection of said piston rods and arms which extend across and are arranged to turn with another set of gears in mesh with said first mentioned gears. Hydraulic circuit means is provided for selec-



tively retracting one of the two piston rods while maintaining the other one in a projected position, and vice versa. When this occurs, the resultant movement of the pivotal connection between the two piston rods along an arc on the side of the retracted piston rod, causes the links to impart a greater degree of rotation to the gears, and hence to the wheel, on the side of the retracted piston rod than to the gears and hence to the wheel on the opposite side.

3,575,255

AUTOMOBILE GUIDANCE SYSTEM

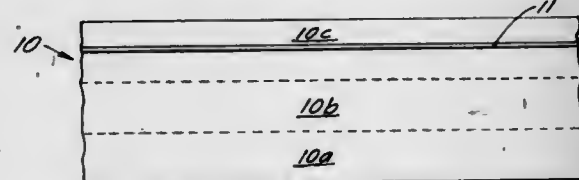
Svante Theodore Wickstrom, East Oakdale Township, Washington County, Minn., assignor to Minnesota Mining and Manufacturing Company, St. Paul, Minn.

Filed Oct. 11, 1968, Ser. No. 766,863

Int. Cl. B60k 31/00

U.S. Cl. 180-98

13 Claims



A method for controlling the speed and direction of an automobile on a highway. The highway is provided with an essentially continuous magnetizable stripe extending in the direction of travel, with the stripe being magnetized with a sequency of magnetic poles alternating in polarity and located along the highway according to a predetermined frequency; preferably the stripe is provided by painting a mixture of organic polymeric binder material and magnetizable particles on the highway. The automobile is provided with two magnetic-flux-sensors arranged to straddle the magnetizable stripe and pass through the fields above the stripe and develop an alternating electric signal having a frequency determined by the spacing between the magnetic poles and by the speed of the automobile. Speed and direction-controlling means in the automobile receive the signal generated in the magnetic-flux-sensors and change the speed and direction of the automobile in proportion, respectively, to the amount that the total flux-sensor-derived signal varies as to frequency from a standard and to any difference in amplitude of the derived signals of the two sensors.

3,575,256

SPEED CONTROL SYSTEM FOR AN AUTOMOTIVE VEHICLE

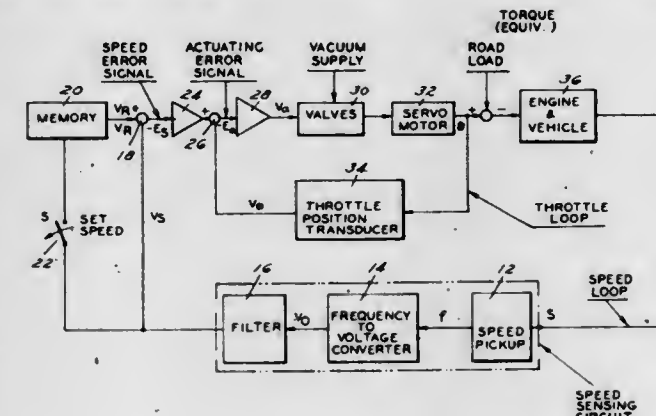
Zbigniew J. Jania, Northville, Mich., and Elliott Josephson, Los Altos, Calif., assignors to Ford Motor Company, Dearborn, Mich., said Jania assignor and Philco-Ford Corporation, Philadelphia, Pa., said Josephson assignor

Filed Jan. 12, 1969, Ser. No. 798,672

Int. Cl. B60k 31/00

U.S. Cl. 180-105E

16 Claims



This disclosure relates to a speed control system for an automotive vehicle operated by an internal combustion engine and includes a controller means or throttle coupled to the internal combustion engine for controlling the output power of the engine and the speed of the vehicle. Means are provided in the system for producing a first electrical signal corresponding to the actual speed of the vehicle and means are also provided for producing a second electrical signal corresponding to the position of the throttle or controller means. There are also means provided for producing a signal corresponding to a desired or set speed of the vehicle. Power actuating means in the form of a servomotor is coupled to the controller or throttle means for controlling the position of the throttle or controller means and a memory is provided for storing the signal corresponding to the set or desired speed of the vehicle. Means, preferably in the form of a differential amplifier, receive the first, second and third signals and combine them to produce an actuating error signal which is applied through circuit means to the power actuating means or servomotor to operate the controller means or throttle. The memory means for storing the signal corresponding to the desired speed or set speed of the vehicle is connected or coupled to this circuit means for producing and storing a signal when the servomotor or power actuator begins to control the position of the controller means or throttle upon command by the vehicle operator.

3,575,257

VEHICLE SPEED CONTROL DEVICE

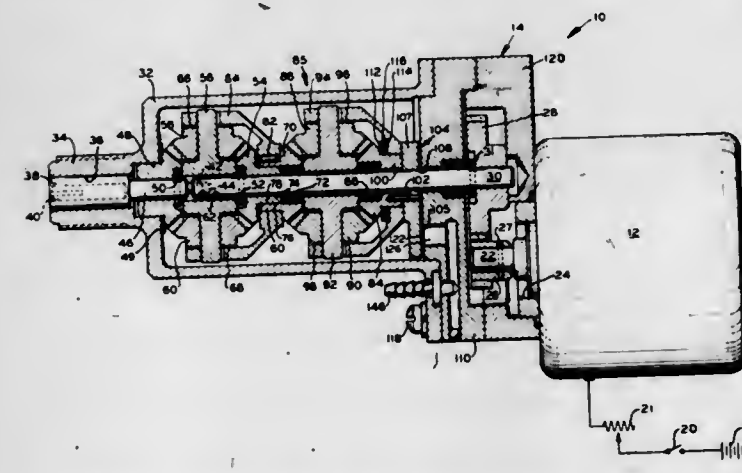
Richard J. Wojcikowski, Toledo, Ohio, assignor to Dana Corporation, Toledo, Ohio

Filed Feb. 12, 1969, Ser. No. 798,713

Int. Cl. B60k 31/00

U.S. Cl. 180-105

12 Claims



A speed control unit is provided wherein two input speed signals are received mechanically, one being a referenced

speed and the other being the actual speed, and these speeds differenced so as to provide an output signal which can be utilized to accelerate or decelerate an engine which is to be automatically controlled.

3,575,258

TREMOLO OR VIBRATO PRODUCING APPARATUS INCLUDING ROTATING OR OSCILLATING RAFFLE

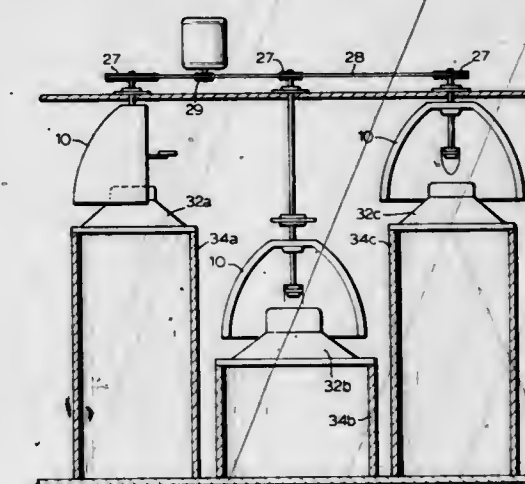
Lawrence A. Muma, Kitchener, Ontario, Canada, assignor to Electrohome Limited, Kitchener, Ontario, Canada

Filed Sept. 18, 1969, Ser. No. 859,016

Int. Cl. G10k 11/10; H04r 1/34

U.S. Cl. 181-27

6 Claims



The sound channel of a rotating baffle for creating a tremolo effect is, as seen by the sound transducer that "fires" into the channel, substantially a semiparabola of revolution.

3,575,259

RETRACTABLE NOISE SUPPRESSION SYSTEM

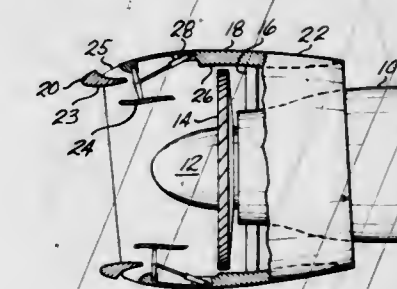
Philip W. Wilkinson, Kent, Wash., assignor to The Boeing Company, Seattle, Wash.

Filed Apr. 10, 1970, Ser. No. 027,275

Int. Cl. F01n 1/14; B64d 33/06

U.S. Cl. 181-35

7 Claims

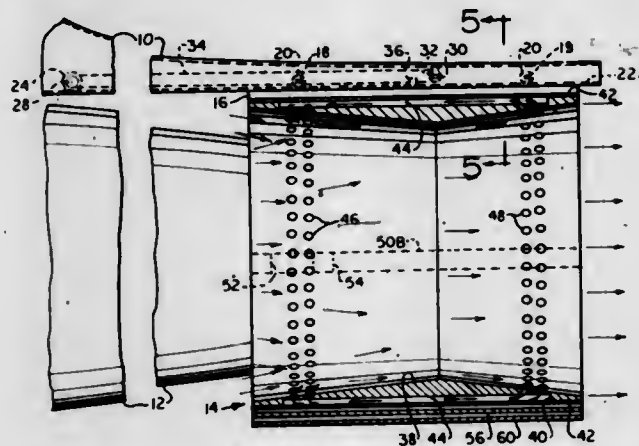


An aircraft engine air inlet noise suppression foil means comprising a plurality of segmented acoustically treated foil members stowed in recesses along the wall of the inlet passageway during cruise flight. The foil members are movable to an operative position for takeoff and low speed flight where they collectively form a ringlike array which splits the inlet flow and increases the acoustically treated wetted surface area tending to reduce sound pressure levels. The preferred embodiment provides stowed positions in auxiliary intake passageways which are opened by a translating cowl section, and foil members which automatically rotate to conform to local streamlines of the changing flow pattern in the inlet.

3,575,260

METHOD AND APPARATUS FOR AUGMENTING THE THRUST OF A JET-PROPELLED AIRCRAFT AND SUPPRESSING THE NOISE THEREOF

George R. Urguhart, El Cajon, and Remo Tontini, San Diego, Calif., assignors to Rohr Corporation, Chula Vista, Calif.
 Filed May 15, 1969, Ser. No. 835,281
 Int. Cl. F01n 1/14, 1/16; B64d 33/06
 U.S. Cl. 181-51 11 Claims

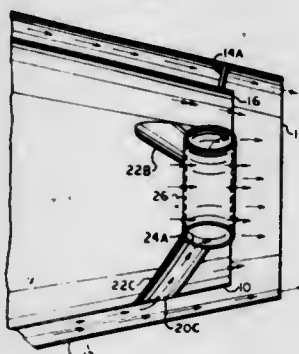


A tubular ejector is mounted on the nacelle of a jet-propelled aircraft so that it can be stowed alongside the nacelle or positioned downstream therefrom. A pair of hemicylindrical panels are mounted on the lower portion of the outer side of the ejector for movement between a stowed position alongside the ejector and a deployed position wherein one of the panels projects from the aft end of the ejector and the other panel projects from the aft end of said one panel. The jet stream flowing through the ejector is prevented from detaching from the inner surface thereof by admitting a portion of the boundary layer of said jet stream into holes which terminate within an area encircling the aft portion of said inner surface and which communicate with the forward portion of the ejector throat.

3,575,261

FAN JET SILENCER WITH FLUID MIXTURE

George E. Medawar, San Diego, and Felix Hom, La Mesa, Calif., assignors to Rohr Corporation, Chula Vista, Calif.
 Filed Oct. 24, 1969, Ser. No. 869,084
 Int. Cl. R64d 33/06 2 Claims



A tubular housing is disposed in spaced relation around thrust nozzle of aircraft turbofan engine and extends downstream from aft end thereof, fan air of said engine being discharged through the annulus between the housing and nozzle. Tubes are connected at one end thereof to edges of openings spaced around periphery of the nozzle and at other end thereof to edges of openings spaced apart around periphery of a hollow ring coaxially mounted within nozzle at the aft portion thereof, so that portion of fan air flowing through the aforesaid annulus enters tubes and is discharged from a circular slot in the aft end of the ring into central portion of primary exhaust gas stream flowing through nozzle, the remainder of the fan air flowing around the stream discharged from the nozzle.

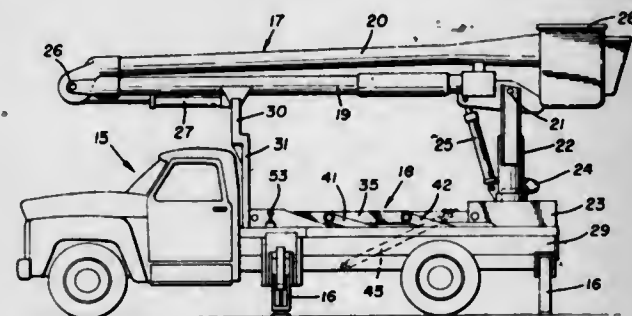
3,575,262

AERIAL LIFT APPARATUS WITH ELEVATOR

Glenn W. Way, Delaware, Ohio (c/o Transairco, Inc., P.O. Drawer B)
 Filed Dec. 27, 1968, Ser. No. 787,521
 Int. Cl. E04g 1/22 3 Claims

U.S. Cl. 182-2

3 Claims



An aerial lift apparatus of the type which includes a primary lift boom assembly composed of relatively foldable hinged sections, carried on a vehicle by means of an auxiliary elevator assembly which is supported by parallelogram linkage for vertical swinging movement in a plane extending longitudinally thereof.

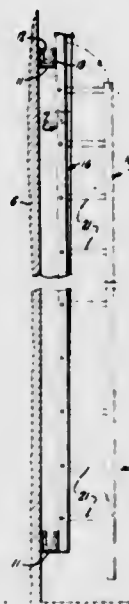
3,575,263

FOLDING FIRE ESCAPE LADDER

Cheyenne A. Reinhard, 594 Beatrice St., San Leandro, Calif.
 Filed Sept. 29, 1969, Ser. No. 861,684
 Int. Cl. E06c 1/383 3 Claims

U.S. Cl. 182-160

-3 Claims



A folding fire escape ladder has an L-shaped first upright adapted to be secured vertically to the side of a building and has an L-shaped second upright parallel to but reversely positioned with respect to the first upright. A plurality of rungs are connected to both uprights, each rung having parallel end portions and an offset intermediate portion, the rungs being pivotally connected at the end portions to the uprights by shoulder rivets having enlarged, flanged heads. Other shoulder rivets extend from the uprights and are positioned to engage the margins of the rung to serve as stops, the other rivets also having enlarged flanged heads adapted to engage one side of the rung as positioners. A latching lever adapted to engage the first upright is releasably held against a fulcrum on the second upright by a spring, there being an actuating cable attached to the lever and to the second upright.

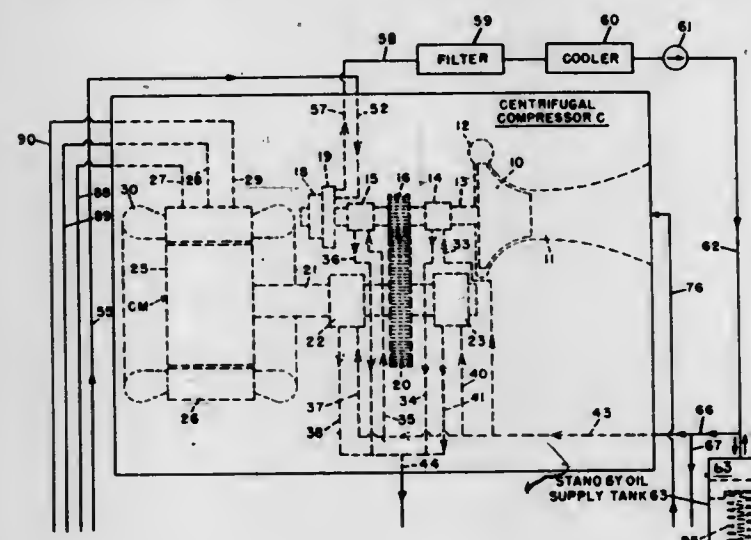
3,575,264

OIL PUMPING SYSTEM

John G. Johnson, Waynesboro, and George N. Miller, Jr., Staunton, Va., assignors to Westinghouse Electric Corporation, Pittsburgh, Pa.
 Filed Mar. 17, 1969, Ser. No. 807,801
 Int. Cl. F16n 13/22 9 Claims

U.S. Cl. 184-6

9 Claims



A centrifugal refrigerant compressor has an internal oil pump consisting of an oil pumping plate on the shaft of its impeller, and a thrust plate. At startup of the compressor, an external oil pump circulates oil through the internal pump and the bearings of the compressor. When the compressor speed approaches normal, an oil pressurestat opens a switch which turns off the external pump, and the internal pump circulates the oil.

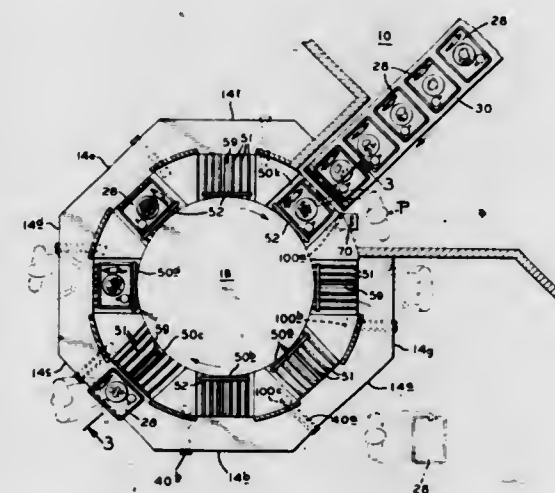
3,575,265

ARTICLE DELIVERY SYSTEM

Luther G. Simjian, Laurel Lane, Greenwich, Conn. 06830
 Filed Nov. 12, 1968, Ser. No. 775,047
 Int. Cl. E04h 3/04 1 Claim

U.S. Cl. 186-1

1 Claim



An article delivery system comprises an article-conveying means having a plurality of article support means and a plurality of stationary article-receiving positions. Each article-receiving position has means for receiving a coded stub which originally was a part of a coded ticket. Each of the article support means is provided with a code storage means adapted to be set by the code of a ticket portion. As the code storage means is conveyed by the article-conveying means past the individual article-receiving positions, it receives input signals from the coded stubs disposed at the respective positions. If a signal match is obtained, the article conveyed by the conveying means is delivered to the respective position and the respective storage means is zeroized.

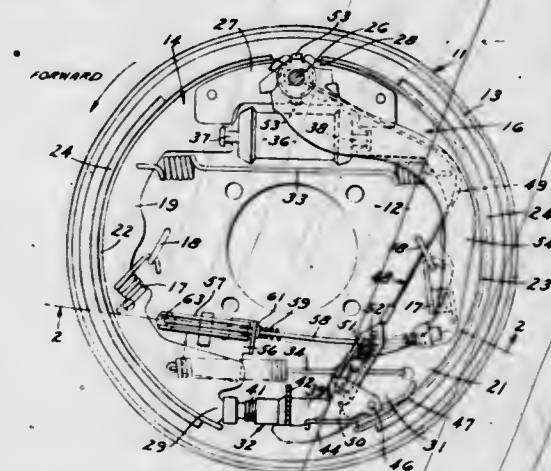
3,575,266

SELF-ADJUSTING PARKING BRAKE

Amnon Stichtin, Gainesville, Fla., assignor to Ford Motor Company, Dearborn, Mich.
 Filed July 28, 1969, Ser. No. 845,367
 Int. Cl. F16d 65/22 6 Claims

U.S. Cl. 188-106

6 Claims



A parking-brake-actuating linkage that is automatically adjustable in response to adjustment of the brakeshoes. A cable guide is mounted on one of the shoes near the adjusting screw and tightens the parking brake cable as the brakeshoes are adjusted outwardly.

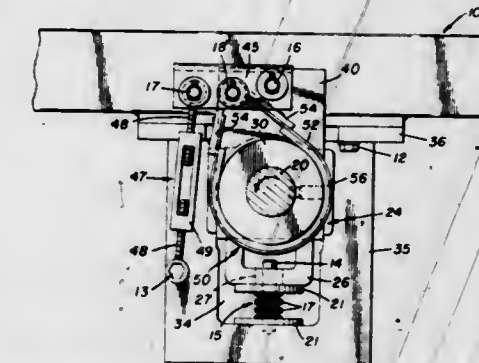
3,575,267

SELF-COMPENSATING LOAD RESPONSIVE BRAKE ASSEMBLY

Walter William Lauer, Jr., Canton, Ohio, assignor to The General Tire & Rubber Company
 Filed Apr. 21, 1969, Ser. No. 817,798
 Int. Cl. B60t 8/18 4 Claims

U.S. Cl. 188-195

4 Claims



A self-compensating brake assembly continually applies a braking or drag force on a rotating shaft in response to changes in weight on the shaft. A spring-biased bearing member moves vertically relative to a carrier plate in response to changes in weight on the shaft it supports. An endless brake band is attached to a pivot arm with one end connected to the bearing support and the other end connected to the bearing member. The brake band, which continually engages a brakedrum rotating with the shaft, is connected to the arm between its ends. Therefore, the brake band support point moves a lesser vertical distance in proportion to the brake drum to provide tightening and loosening contact of the band in proportion to the weight on the shaft.

3,575,268

AUTOMATIC CLEARANCE-ADJUSTING MEANS FOR DISC BRAKE

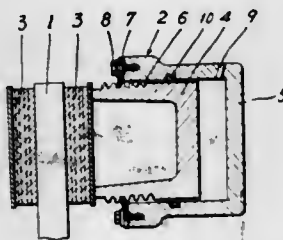
Shigehiro Kimata, Yokohama, Kanagawa Prefecture, Japan, assignor to Isuzu Motors Ltd., Tokyo, Japan
 Filed Sept. 8, 1969, Ser. No. 856,048
 Int. Cl. F16d 65/54, 55/18 8 Claims

U.S. Cl. 188-196

8 Claims

An automatic clearance-adjusting means for a disc brake, wherein spaced annular grooves are provided in parallel with

each other on the circumference of a piston having brake pads at its one end, and resilient means is provided on a cylinder so as to engage with said grooves, whereby the



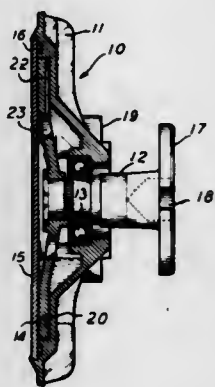
clearance between a brake disc and the brake pads is always maintained within a predetermined limit by displacing the engaged position of said grooves with said resilient means.

3,575,269 FLUID COUPLING

Scott G. Sherman, Fort Worth, Tex., assignor to Eagle Parts Co., Inc., Fort Worth, Tex.
Filed Sept. 12, 1969, Ser. No. 857,404
Int. Cl. F16d 33/00

U.S. Cl. 192-58R

3 Claims



A fluid coupling of the type having relatively rotatable slightly spaced members operating in a viscous shear medium such as silicone fluid and whereby torque is transmitted from one member to the other at relatively low speeds. The present invention is characterized by indentations in one or both of the members where they face each other so as to entrap some of the fluid and thereby increase the shearing effect.

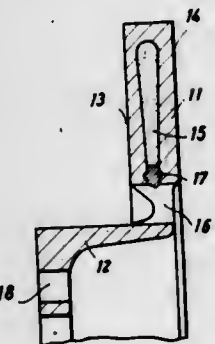
3,575,270 FRICTION MEANS

Heinrich Wagenfuhrer, Reinbek, and Carl Thomas, Hamburg, Germany, assignors to Jurid Werke G.m.b.H., Glinde, Reinbek, Germany

Filed Dec. 4, 1968, Ser. No. 781,047
Claims priority, application Germany, Dec. 9, 1967,
P 16 25 745.7
Int. Cl. F16d 13/64

U.S. Cl. 192-107

2 Claims



A friction means such as e.g. a friction brake or a friction clutch is provided with a rotatable friction part against which

friction elements are applicable for e.g. braking or clutching. Said friction part consists of a hollow body being of rotational configuration and having a hollow substantially closed chamber therewithin extending therearound, said chamber being filled with damping material.

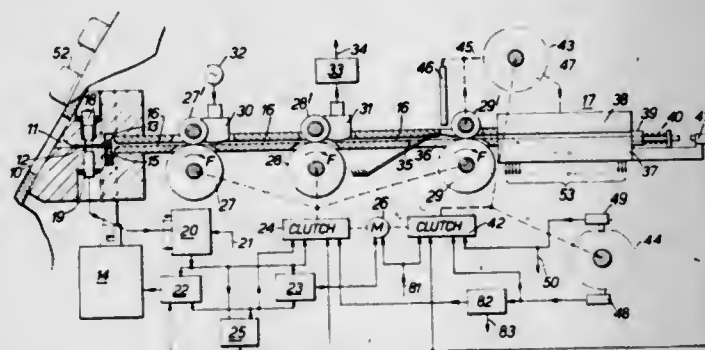
3,575,271 ACCESS-CONTROL EQUIPMENT AND ITEM-DISPENSING SYSTEMS INCLUDING SUCH EQUIPMENT

Geoffrey Ernest Patrick Constable, Cheltenham, England; Graeme E. Cullen, Castle Douglas, Scotland, and Richard Swarbrick, Glasgow, Scotland, assignors to Smiths Industries Limited, London, England

Filed Mar. 5, 1968, Ser. No. 710,599
Claims priority, application Great Britain, Mar. 6, 1967,
10537/67
Int. Cl. G07f 1/06

U.S. Cl. 194-4

23 Claims



A money-dispensing system is operative to dispense money in response to a bank customer's punched card and keyed entry of his personal identification number, only if pulse recordings are detected on the card after it has been submitted to a magnetic-eraser process, such process erasing recording from all except high-coercivity material. Admission of a card to the equipment is barred unless it has a predetermined hole distribution along a leading edge.

3,575,272 SELECTOR MECHANISM FOR VENDING MACHINE

Russell L. Hildebrand, 1129 Madigan, Concord, Calif.
Filed Mar. 6, 1969, Ser. No. 804,840
Int. Cl. G07f 11/00

U.S. Cl. 194-93

5 Claims



An apparatus enabling a single coin chute mechanism to selectively vend a plurality of items having a manually engageable selector arm connected to a pusher head which is in turn slidably connected to a guide rail mounted on the coin chute mechanism.

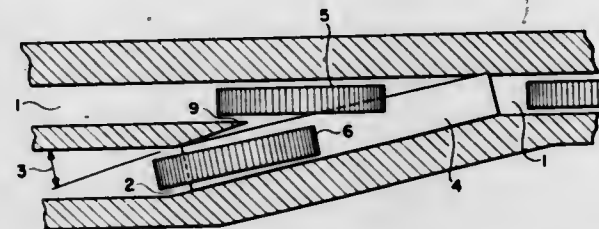
3,575,273 MEANS FOR SEPARATING DIAMAGNETIC FROM FERROMAGNETIC AND PARAMAGNETIC COINS AND DISKS

Harry J. Lajeunesse, 91 Village Green P.O. Box 1306, Stittsville, S.S. #4, Ontario, and Tadeusz Pecak, 750 Notre Dame Drive, London, Ontario, Canada, assignors to Northern Electric Company Limited, Montreal, Quebec, Canada

Filed Feb. 7, 1969, Ser. No. 797,418
Int. Cl. G07f 3/02

U.S. Cl. 194-101

5 Claims



A coin separator which actively controls the rolling of ferromagnetic and paramagnetic from diamagnetic coins by the placement of a magnet in the floor of a subsidiary coin chute leading at an angle from a main coin chute. Ferromagnetic and paramagnetic coins rolling down the main coin chute encounter the field of the magnet, and in rolling motion are caused to turn into the subsidiary coin chute. Diamagnetic coins, not being attracted by the magnet field, continue down the main coin chute.

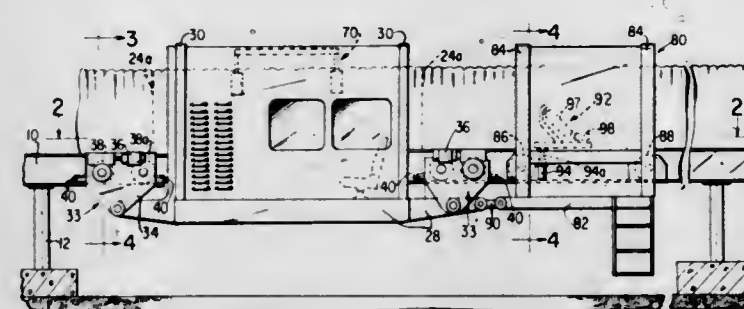
3,575,274 CONVEYOR FRAME SUPPORTED INSPECTION AND SERVICE VEHICLE

Sylvester E. Ewing, Pine Brook, and Jacob Hubee, Wayne, N.J., assignors to Hewitt-Robins, Incorporated, Stamford, Conn.

Filed Oct. 30, 1968, Ser. No. 771,783
Int. Cl. B65g 15/08, 15/60, 21/00

U.S. Cl. 198-1

10 Claims



A self-propelled vehicle is provided which rides on the side beams of long length conveyors. A first lifting mechanism is provided in the vehicle which removes the protective cover from the conveyor. A second lifting mechanism is provided having a lifting head that permits the elevated conveyor belt to continue operation while the defective idler roll is repaired or replaced.

3,575,275 CONTAINER FEED AND DISCHARGE SYSTEM

James L. Reimers, San Jose; Donald S. Meek, Saratoga, and Warren S. Smith, San Jose, Calif., assignors to FMC Corporation, San Jose, Calif.

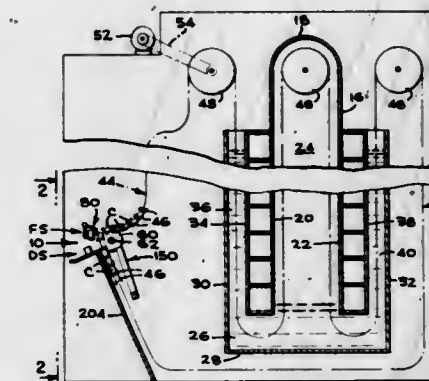
Filed Jan. 30, 1969, Ser. No. 795,283
Int. Cl. B65g 17/12, 47/04, 47/21

U.S. Cl. 198-24

7 Claims

A system for reliably guiding cylindrical containers supported on one end along a linear path and forming the containers into elongated rows of abutting containers. Transfer means for deflecting the rows of containers transversely into open articulating carriers while retaining the individual con-

tainers in each row in alignment. After the rows of containers have been processed a pusher is provided for positively



deflecting the rows of containers transversely out of the carriers.

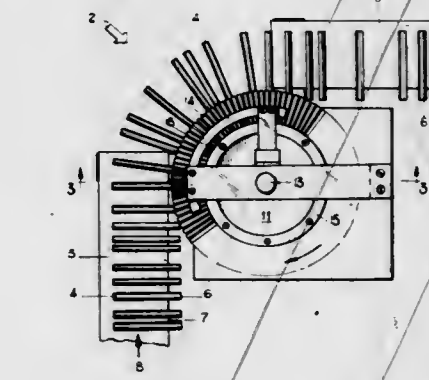
3,575,276 DIRECTION CHANGING IN CONVEYANCE SYSTEMS

John P. Rupert, Stellenbosch, Republic of South Africa, assignor to Tobacco Research and Development Institute Limited, Zug, Switzerland

Filed Apr. 26, 1968, Ser. No. 24,332
Claims priority, application Republic of South Africa, May 26, 1967, 67/3135
Int. Cl. B65g 42/00

U.S. Cl. 198-25

7 Claims



A device for transferring rodlike articles such as cigarettes from one moving conveyor to another, that operates satisfactorily whether or not the articles are spaced at regular intervals on the delivering conveyor. The device is an endless element moving in a path between the conveyors, the element having resiliently deformable walls defining a continuous slot in which the end of an article overhanging the edge of the delivering conveyor is gripped. The article is released on to the second conveyor with its end overhanging the edge of that conveyor too. Cams or the like are used to deform the slot walls to cause gripping and release at the correct points.

3,575,277 DUMP FEEDER

George E. Kilner, Alameda, Calif., assignor to Filper Corporation, San Ramon, Calif.

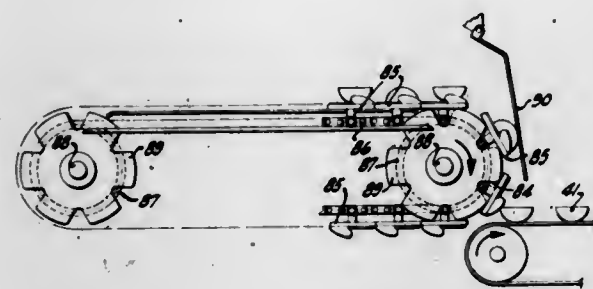
Filed Apr. 7, 1969, Ser. No. 813,955
Int. Cl. B65g 47/24

U.S. Cl. 198-33

16 Claims

An orienter and feed device for receiving, one at a time, generally hemispherical bodies, such as drupe halves indiscriminately positioned insofar as whether their planar and hemispherical surfaces are uppermost or lowermost, and automatically delivering said halves, one at a time, with their

planar faces uppermost. The disclosure includes means for delivering said drupes to a row of such devices and means for



receiving and supporting the oriented halves delivered therefrom, in single files, one for each device.

3,575,278

APPARATUS FOR SELECTIVELY RECEIVING AND ALIGNING PACKAGES

Wolfgang Hoffmann, Beaconsfield, and Cesar Eduard Purkhardt, Ville De Laval, Durvenay, Quebec, Canada, assignors to Canadian International Paper Company, Montreal, Quebec, Canada

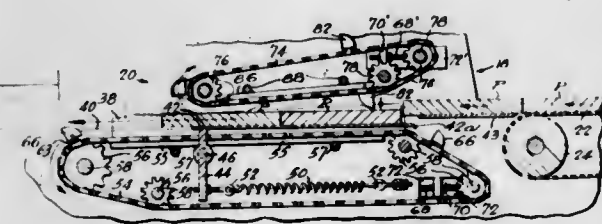
Filed Apr. 19, 1968, Ser. No. 722,589

Claims priority, application Canada, Feb. 29, 1968, 13,690

Int. Cl. B65g 47/26, 19/26

U.S. Cl. 198—34

4 Claims



An apparatus and method of selectively feeding and presenting individual packages, processed by a previous packaging operation in alignment for a subsequent wrapping operation. The apparatus includes two different control systems where one or more packages are taken under control of the first control system and presented to a second control system which feeds the packages to the subsequent wrapping operation. The two control systems are driven at different speeds so that a uniform feeding of the aligned packages is presented to the wrapping operation.

3,575,279

CONVEYOR FOR STACKED FLAT BARS

Otto Karl Buchheit, St. Ingbert-Saar, Germany, assignor to Moeller & Neumann G.m.b.H., St. Ingbert-Saar, Germany

Filed Sept. 2, 1969, Ser. No. 854,550

Claims priority, application Germany, Sept. 5, 1968, G67 50

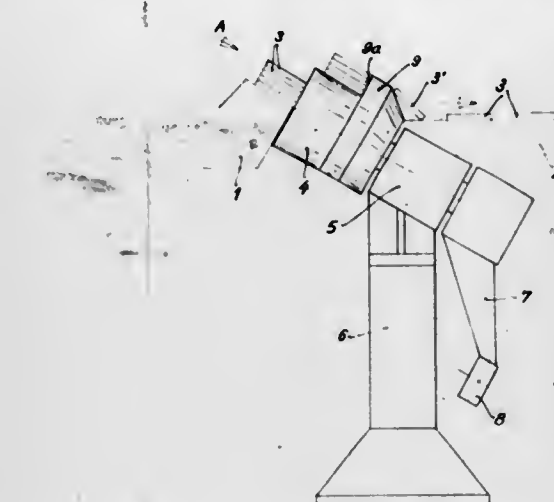
Int. Cl. B65g 59/08

U.S. Cl. 198—35

2 Claims

A device for dropping individual rolled flat bars moved crosswise in a stack over an inclined rake-type cooling bed

on an adjacent horizontal roll-type cooling bed comprises inclined transport rolls having crescent-shaped bar stops with



a maximum height corresponding to the top of the bar stack and rotatable to decrease the crescent level for dropping the bars successively on the roll-type cooling bed.

3,575,280

FISH EGG COUNTER

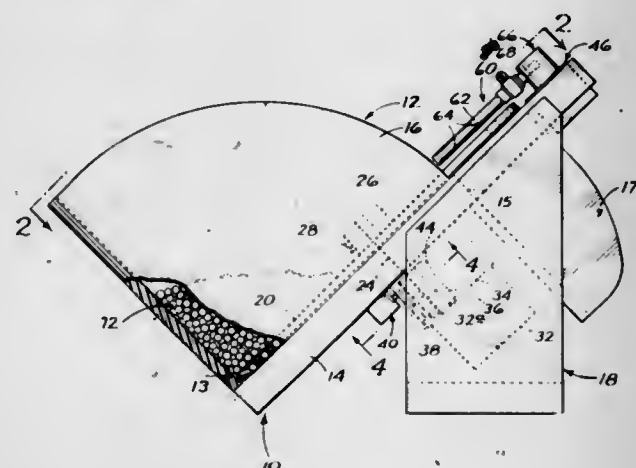
Denny B. McClary, Box 469, Bonneville, Oreg.

Filed Dec. 16, 1968, Ser. No. 784,143

Int. Cl. B65g 43/00, 29/00

U.S. Cl. 198—40

8 Claims



Apparatus for counting fish eggs including a container for holding eggs to be counted, and extending into the container a revoluble disc, including multiple apertures for collecting eggs with the disc revolving. A counter is provided for counting the number of revolutions of the disc. Eggs carried away in the apertures are discharged therefrom through an opening positioned and sized to communicate, at a given time, with a multiplicity of apertures. A water sprayer outside the container and opposite the opening sprays water onto the disc's surface. Such facilitates egg removal and by producing a film of lubricant on the surface of the disc reduces friction between such surface and eggs engaged thereby.

3,575,281

SUSPENDED TRAY CONVEYOR

William M. Sutton, Whittier, Calif.

Filed Dec. 9, 1968, Ser. No. 782,163

Int. Cl. B65g 17/00

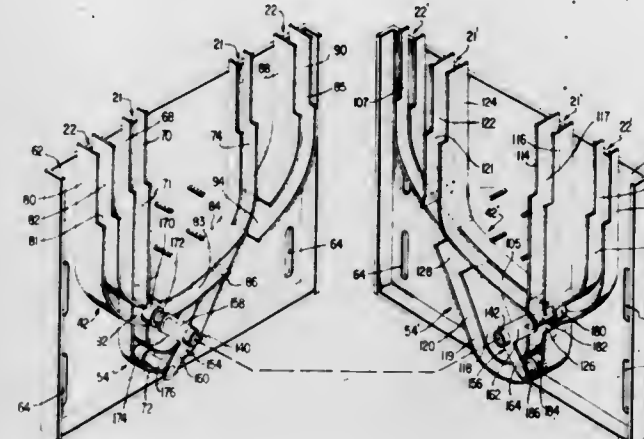
U.S. Cl. 198—158

7 Claims

A suspended tray conveyor of the type where load-carrying trays, carried at spaced points on sprocket supported endless chains, are guided by two sets of parallel tracks opposing one another on opposite sides of the elevator housing. On each

side, the tracks intersect each other in two places so that the trays may be pivoted from an operative load-carrying position to a folded position. Adjacent the intersection of the

shaft fixed approximately equidistant from the sprockets. An upstanding guide flange adjacent one edge of the base plate



tracks the opposing tracks are of different depths and track engaging rollers on the trays are arranged so that by their engagement with the tracks at and adjacent the intersections each tray, as moved along on the conveying chains, is smoothly pivoted between the folded and operative positions.

3,575,282

ARTICULATED, WHEELED CHAIN FOR INDUSTRIAL CONVEYORS

Cesare Galotto (Strada Statale Milan-Crema km.27), and Alvisio Galotto, Vaiano Cremasco, Cremona, Italy (Strada Statale Milan-Crema km.27)

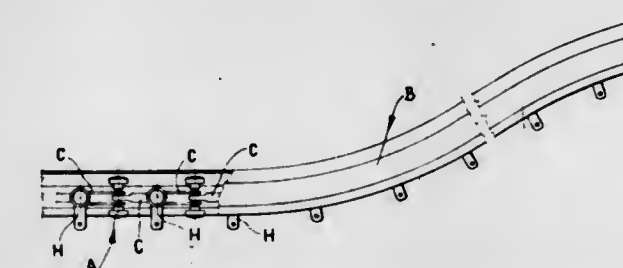
Filed Oct. 21, 1968, Ser. No. 769,228

Claims priority, application Italy, Jan. 31, 1968, 12230-A

Int. Cl. B61b 13/04; B65g 17/20

U.S. Cl. 198—177

2 Claims



An articulated, wheeled chain for industrial conveyors having a plurality of U-shaped rigid elements which alternately lie in horizontal and vertical planes and are pivotally connected with each other by means of pins linking the knee of each element with the arm of the adjacent one. The pins are alternately perpendicular with one another and carry at their respective opposite ends a pair of wheels perpendicular to the related pin axis and adapted to engage with a track having a spider or square cross section. In this manner, the wheels are caused to always roll on the track without any sliding friction between track and wheels, even when the latter travel along curved track sections.

3,575,283

BELT GUIDE

John D. Curran, Chardon, Ohio, assignor to W. S. Tyler, Incorporated, Mentor, Ohio

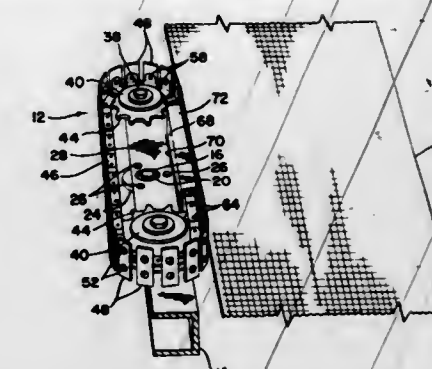
Filed Feb. 6, 1969, Ser. No. 797,030

Int. Cl. B65g 15/64

U.S. Cl. 198—202

13 Claims

An edge guide for an endless wire conveyor belt including an endless chain having a wide wear surface for contact with the conveyor belt. The chain is supported by two spaced sprockets mounted on a base plate which is journaled about a



engages the back of the endless chain and limits lateral displacement; rollers on the chain are adapted to engage the flange in rolling contact.

3,575,284

POSTING TRAYS

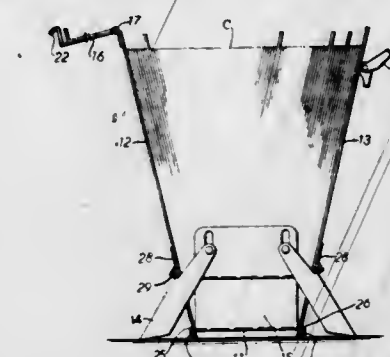
Eric M. Holt, East Aurora, N.Y., assignor to Posting Equipment Corporation, Buffalo, N.Y.

Filed Sept. 9, 1969, Ser. No. 856,386

Int. Cl. A45c 11/00; A47f 7/00; B65d 5/52

U.S. Cl. 206—1

2 Claims



A posting tray devised chiefly for portability and thus having a relatively small capacity of rectangular cards. The tray is of the type where both front and back plates are movable outwardly from a parallel carrying position to acute angular positions to provide a convenient access to the cards. Simultaneously with such movement, legs are automatically spread outwardly to provide a stable enlarged base to support the file against tipping during filing operations.

3,575,285

COMBINED DISPLAY CARD AND CARRYING CASE

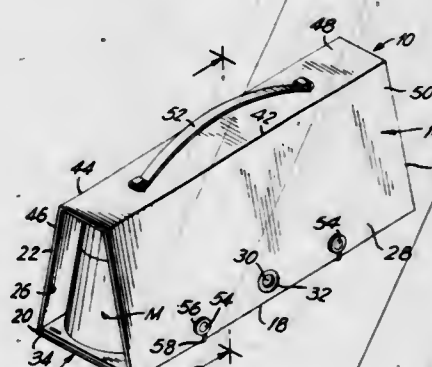
Robert D. Kahn, Rockville, N.Y., assignor to Fedtro, Inc., Rockville Centre, N.Y.

Filed Jan. 29, 1969, Ser. No. 795,087

Int. Cl. B65d 71/00, 73/00, 85/00

U.S. Cl. 206—44

3 Claims



A combined display card and carrying case unit is provided for use in merchandising various consumer-type articles. The

unit includes a display panel fixed to a platform, the platform supporting the articles to be sold. When hung on a peg of a display rack in a retail outlet, the display card is unfolded to advertise the articles. When a sale is made, the display card is folded and in connection with the platform, forms a carrying case for the articles.

3,575,286

DISPLAY CARTON

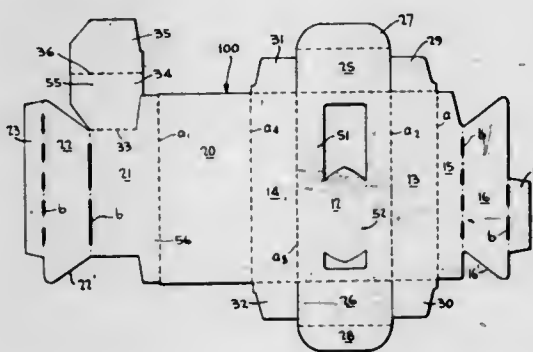
Charles W. Rosenberg, Jr., North Tonawanda, N.Y., assignor to F.N. Burt Company, Inc., Buffalo, N.Y.

Filed Apr. 1, 1969, Ser. No. 812,161

Int. Cl. B65d 5/48; B31b 3/60

U.S. Cl. 206-45.14

8 Claims



The carton is of parallelepiped configuration and comprises spaced front and backwalls connected by two sidewalls, and provides a central pocket or compartment for receiving an article of commerce, and a buffer compartment on each side of said pocket, defined by partition panels extending across the interior of the carton from front to back and parallel with the sidewalls.

3,575,287

PACKAGING CONTAINER FOR MEAT PRODUCTS AND THE LIKE

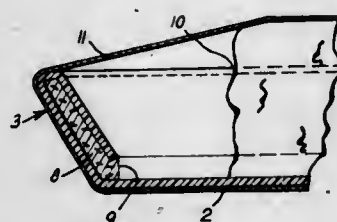
Oscar W. Graveley, Sanborn, N.Y., assignor to Niagara Frontier Services, Inc., Buffalo, N.Y.

Continuation-in-part of application Ser. No. 751,420, Aug. 9, 1968, now abandoned. This application July 18, 1969, Ser. No. 843,132

Int. Cl. B65d 65/16

U.S. Cl. 206-45.33

10 Claims



A packaging container including a tray having a transparent bottom and an upstanding rim. A channel in the rim is open to the bottom, and moisture-absorbing material in the channel is exposed at the juncture between the bottom wall and rim to absorb juices.

3,575,288

ADJUSTABLE LEG ASSEMBLY

Byron L. Brucken, Dayton, Ohio, assignor to General Motors Corporation, Detroit, Mich.

Filed July 17, 1969, Ser. No. 842,494

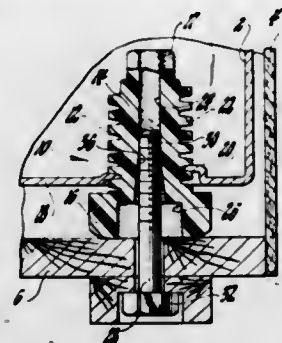
Int. Cl. B65d 19/40, 85/68; F16m 13/00

U.S. Cl. 206-46

4 Claims

In the preferred form, an adjustable leg assembly including an externally threaded, vertically adjustable, leveling member, adapted to be received in a threaded portion in the base of the domestic appliance, and furthermore, having an

internal bore for receiving a shipping bolt whereby the domestic appliance may be rigidly secured to the base of a shipping container by the shipping bolt and leveling member. Also, the leveling member has a counterbore adapted to



receive a resilient plug when the shipping bolt is removed from the leveling member at which time a plurality of such adjustable leg assemblies may be vertically, axially adjusted with respect to the respective threaded portions in the base of the domestic appliance so as to level the domestic appliance when supported on the adjustable leg assemblies.

3,575,289

REINFORCES ROLLS OF NEWSPRINT

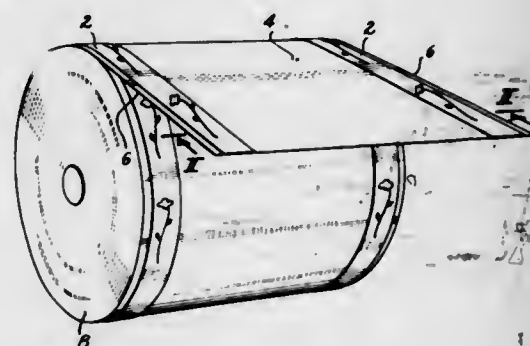
Georges E. C. Brousse, 2, Avenue du President Wilson, Perpignan, Pyrenees-Orientales, France

Filed May 7, 1968, Ser. No. 727,360

Int. Cl. B65d 85/66

U.S. Cl. 206-59

2 Claims



A roll of newsprint obtained by directly securing thin aluminum metal foil strips having a thickness of from 4 to 15 microns, at least adjacent both marginal edges of the newsprint.

3,575,290

PACKAGED ARTICLE ASSEMBLY

Berthold Stork, Frankfurt am Main, Germany, assignor to Braun Aktiengesellschaft, Frankfurt am Main, Germany

Filed May 23, 1969, Ser. No. 827,407

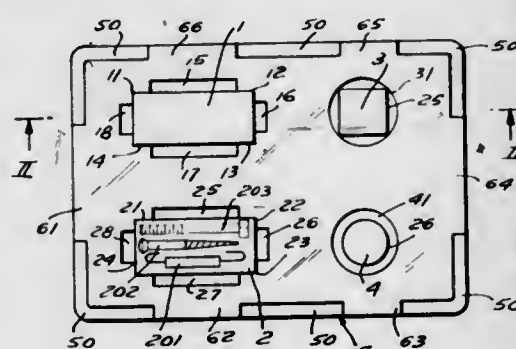
Claims priority, application Germany, May 24, 1968,

P 17 61 479.8

Int. Cl. B65d 73/00

U.S. Cl. 206-80

8 Claims



A packaging assembly in which a frame partially overlaps a base member and is provided with sockets for the positioning

of articles therein. A translucent thermoplastic foil overlies the frame and articles positioned therein and is secured to those portions of the base members not overlapped by the articles or by the frame.

3,575,291

METHODS OF AND APPARATUS FOR TESTING ELECTRICAL COMPONENTS

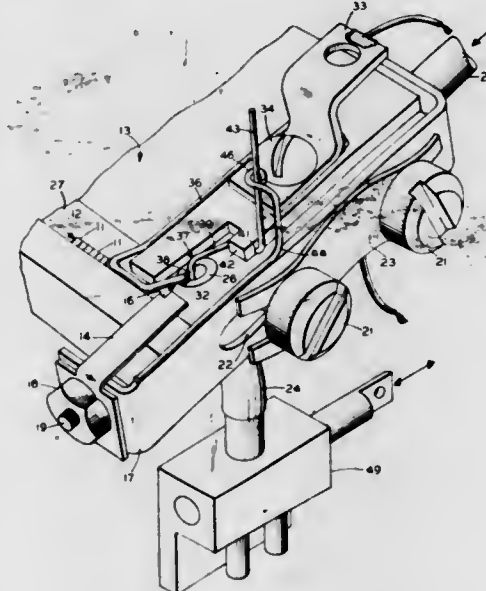
Jerry C. Hurst, Reading, Pa., assignor to Western Electric Company, Incorporated, New York, N.Y.

Filed June 11, 1969, Ser. No. 832,350

Int. Cl. B07c 5/344

U.S. Cl. 209-73

9 Claims



Electrical components, such as semiconductor chips, are tested, individually, and sequentially, at the rim of a conductive chute. The bottom surface of a component rests on the rim, while the top surface of the component is engaged by an electrical probe. In accordance with an electrical test across the probe and the rim, a selector mechanism is actuated so that the outlet of the chute is positioned to a selected output chamber. A subsequent component to be tested is pushed to the position where the first component rested, thereby pushing the first component into the chute so that it may fall therethrough, the said subsequent component now being in position for test. During each cycle of operation, an interposing member is directed toward the chute to assure that the components are separated from each other, and to urge the tested components through the chute.

3,575,292

FRUIT-GRADING APPARATUS

Cesare Roda, 7, Via Ugo Bassi, Cesena, Forli, Italy

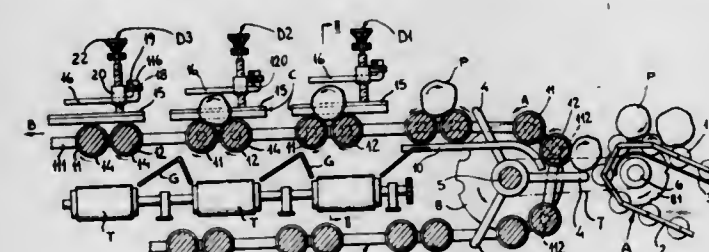
Filed Nov. 19, 1968, Ser. No. 776,902

Claims priority, application Italy, Nov. 29, 1967, 814281

Int. Cl. B07b 13/04

U.S. Cl. 209-90

5 Claims



In a article-grading apparatus, a pair of endless belts, preferably formed by link chains support transversal shallow spaced trough-shaped containers provided with partitions and rear walls permitting their withdrawing from below the articles, when these are firmly held from their top point by

frictional surfaces, constituted by swinging slats arranged at decreasing height above the articles in said trough-shaped containers. The articles, ejected from the advancing supporting trough-shaped containers due to their firm adherence to the underside of the slats, fall through the gap between subsequent containers onto discharge means.

3,575,293

METHOD AND APPARATUS FOR SEPARATING FINELY DIVIDED MATERIALS OF DIFFERENT SPECIFIC GRAVITIES

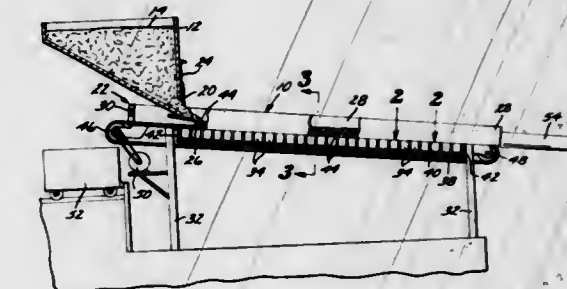
Harold C. Nelson, 4124 N. Pixie Ave., Lakewood, Calif.

Filed Apr. 24, 1969, Ser. No. 818,906

Int. Cl. B03b 3/04

U.S. Cl. 209-458

7 Claims



A method and apparatus for separating finely divided materials of different specific gravities, and involving the passage of a liquid pulp including the materials of interest over a bed of magnetic particles which are retained upon a support by magnetic attraction. The higher specific gravity particles of a particular particle size fall between and are retained by the magnetic particles. The magnetic particles and retained particles are then removed from the support and separated subsequently by conventional means such as screening, flotation and the like.

3,575,294

COUNTERFLOW, MOVING BED TYPE, ION EXCHANGE APPARATUS

Mamoru Hirowatari, Tokyo-to, Japan; Takeo Kawai, and Kangai Ito, Yokohama-shi, Japan, assignors to Nippon Rensui Kabushiki Kaisha (also known as Japan Water Treatment Services Company), Tokyo-to, Japan

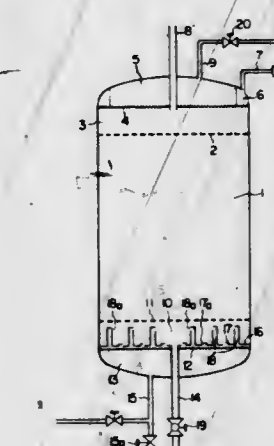
Filed Sept. 18, 1968, Ser. No. 760,643

Claims priority, application Japan, Nov. 27, 1967, 42/75651

Int. Cl. B01d 15/02, 33/16

U.S. Cl. 210-189

12 Claims



In a counterflow moving bed type ion exchange apparatus in which an ion exchange resin is supplied to the upper portion of a column and a liquid being treated is supplied to the

bottom of the column to flow upwardly through the moving resin bed, liquid jets are used to separate a predetermined quantity of the spent resin from the moving resin bed. The separated resin is circulated through a regenerating system including a washing column and a counterflow type regenerating column.

3,575,295

SAMPLE INTRODUCING SYSTEM FOR USE IN LIQUID CHROMATOGRAPHY

Kasumi Yoshida, Mito-shi; Takehide Satou; Masato Matsushima, and Yoshio Fujii, Katsuta-shi, Japan, assignors to Hitachi, Ltd., Tokyo, Japan

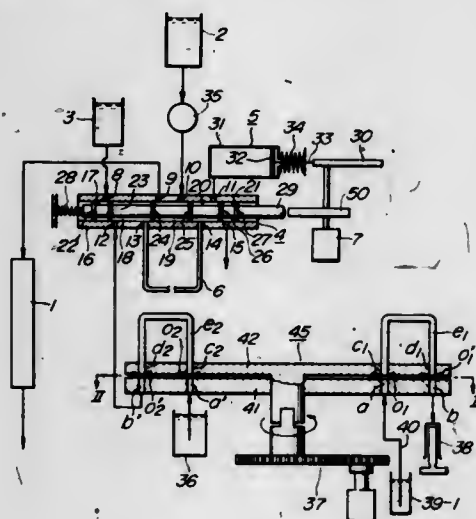
Filed Apr. 9, 1969, Ser. No. 814,775

Claims priority, application Japan, Apr. 11, 1968, Dec. 9, 1968, Jan. 22, 1969, 43/24485; 43/89542; 44/4117

Int. Cl. B01d 15/08

U.S. Cl. 210—198

16 Claims



A sample introducing system for use in liquid chromatography, wherein samples stored in a plurality of sample reservoirs are each intermittently transferred to a sample reserving means, and every time when a sample has been transferred to the sample reserving means, an eluting or developing solution is fed through the sample reserving means to a separating column thereby to introduce the sample to the separating column. In addition, a development suppressing liquid can be fed to the separating column prior to each introduction of the sample to the separating column.

3,575,296

PUMP SYSTEM

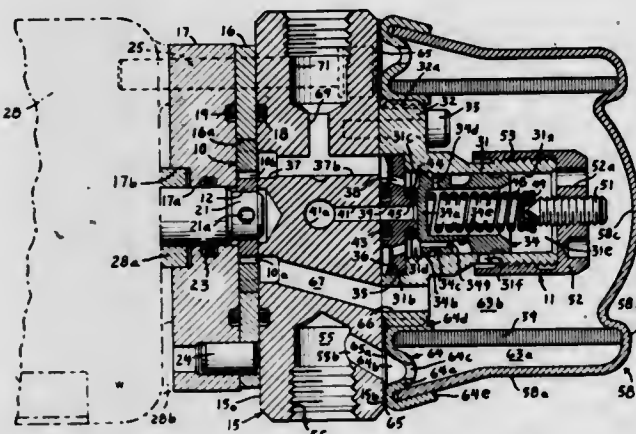
Kenneth E. Peterson, 822 Hawthorne Ave., Rockford, Ill.

Filed Dec. 26, 1968, Ser. No. 786,995

Int. Cl. B01d 29/00, 35/28

U.S. Cl. 210—416

16 Claims



A pump system including a pump and a valve for controlling flow of fluid from the pump to a controlled outlet in which the valve provides a controlled bypass of fluid from

the pump during startup of the pump to delay opening of the controlled outlet until the pump has attained sufficient speed to sustain a predetermined pressure at the flow rates required for the controlled outlet, and in which the valve thereafter closes the bypass and controllably opens a relief passage to maintain the predetermined pressure at the controlled outlet. The valve is in the form of a self-contained unit detachably mounted on the pump housing to enable pretesting of the valve and ready replacement. A filter unit is mounted on the pump and surrounds the valve unit and the filter unit is arranged so that it can be removed and replaced without permitting filtered particles from reaching the pump or valve.

3,575,297

MATERIAL STORAGE AND HANDLING EQUIPMENT

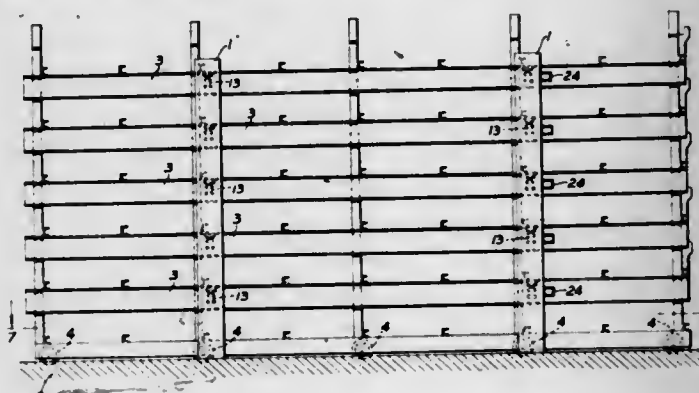
Norman Welch, Harrogate, England, assignor to B. C. Barton & Son Limited, Tivdale, Warley, England

Filed Jan. 21, 1969, Ser. No. 792,662

Int. Cl. A47f 3/08

U.S. Cl. 211—1.5

8 Claims



A storage apparatus having a stack of trays disposed one upon another within a framework, and pressure fluid units in the framework associated with the trays except the lowest tray, and being selectively extensible to lift a number of trays off the trays beneath enabling a portion of the stack to be moved out of the framework leaving the upper portion within the framework to permit access to the top tray of the moved out portion.

3,575,298

STORAGE RACK INSTALLATION

Erwin Ruoss, Tschll, Naters, Switzerland, assignor to Josef Zurschmitten AG., Brig, Switzerland

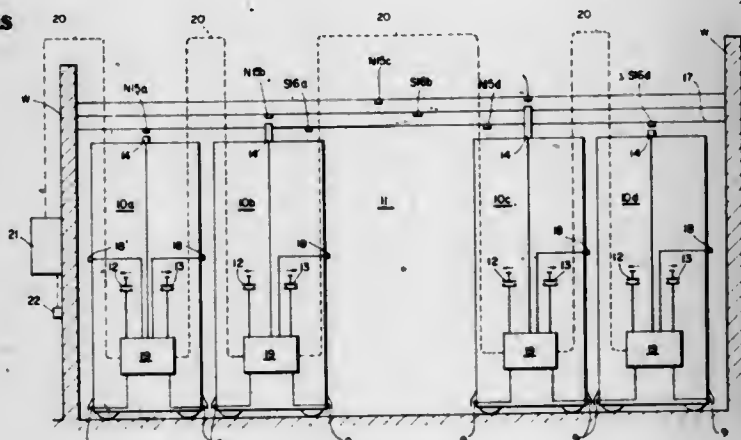
Filed May 7, 1969, Ser. No. 822,392

Claims priority, application Switzerland, May 9, 1968, 7099

Int. Cl. A47f 3/08

U.S. Cl. 211—1.5

4 Claims



A storage rack installation having a rank of movable storage racks disposed in lateral juxtaposition and adapted to be shifted individually or in groups by associated drive means to open an access passage between any two selected neighboring racks. Each rack is provided with a reversible

motor and is mounted on a plurality of wheels at least one of which is coupled to the associated motor. Control means are provided comprising a common control unit which determines the direction of rotation of the motors of the single or group of racks that is to be shifted, by reference to the position of two-way switch means of which one is associated with each rack, and which switch means adopt an open or closed position depending upon the existing position of the rack with which they are associated.

3,575,299

CONNECTOR FOR BEAM STORAGE RACKS

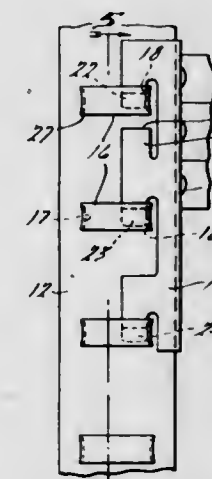
James J. O'Dette, Livonia, Mich., assignor to Palmer-Shile Company, Detroit, Mich.

Continuation-in-part of application Ser. No. 820,853, May 1, 1969, now abandoned. This application Sept. 2, 1969, Ser. No. 854,497

Int. Cl. A47f 5/10; E04g 3/08

U.S. Cl. 211—176

4 Claims



An adjustable beam storage rack having front and rear posts and beams with end connectors interfitted with spaced louvers on the posts. Each connector has a plurality of vertically spaced downwardly extending teeth and one of these teeth has an upwardly extending tab. When inserting the teeth in the louvers, this tab snaps into position under one of the louvers so as to prevent upward withdrawal of the teeth unless it is pried out of alignment with the louver wall by a screwdriver.

3,575,300

DEVICE FOR SUSPENSION AND DISPLACEMENT OF THE LOAD IN A DISTRIBUTIVE JIB TOWER CRANE

Pierre Durand, 19, rue Commandant Faurax, Lyon, Rhone, France

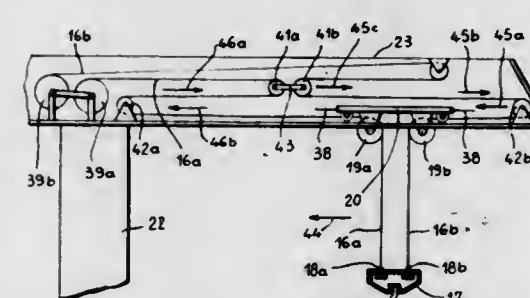
Filed Nov. 22, 1968, Ser. No. 778,225

Claims priority, application France, Dec. 11, 1967, 49,420

Int. Cl. B66c 23/02

U.S. Cl. 212—63

7 Claims



A tower crane with a horizontal distributive jib is traversed by a carriage bearing hoist cables with terminal swivels from which hangs a crossbar. The crossbar carries a load-bearing hook. The hoist cables pass over guide pulleys on the carriage in opposite directions via a plurality of further pulleys to respective drums synchronized winches. The further pulleys include two mounted on a block which moves horizon-

tally in a direction opposite to that of the carriage so as to compensate for the changes in length of the hoist cables and hence to keep the load at a constant level. The tendency of the hoist cables and crossbar to twist is thereby obviated.

3,575,301

MANIPULATOR

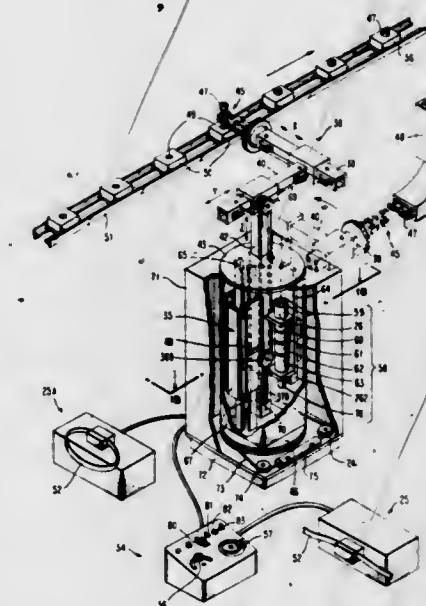
Hugo A. Panissidi, Peekskill, N.Y., assignor to International Business Machines Corporation, Armonk, N.Y.

Filed Jan. 2, 1968, Ser. No. 694,941

Int. Cl. B25j 9/06

U.S. Cl. 214—1

21 Claims



A hydraulically operated manipulator is controlled as an automatic assembly robot to grasp, position and join parts. A tape is perforated with coded instructions and dimensions to control the sequence and amount of displacement by means of incremental motions in several modes of movement of the manipulator. Such modes include grip, sweep, X, Y, Z, Θ (arcuate gripper wrist motion) and search (vibratory parts matching such as inserting a pin in a hole). The main components of the manipulator are a tape reader, an electrically and hydraulically controlled hydraulic serial-to-parallel converter and memory and a hydraulic driver, integer and fraction hydraulic piston adders, an articulated series of X, Y, Z slide members with a gripper and a wrist member all driven by a common drive cable, and a vibratory hydraulic search mechanism.

3,575,302

WORK HANDLING MECHANISM

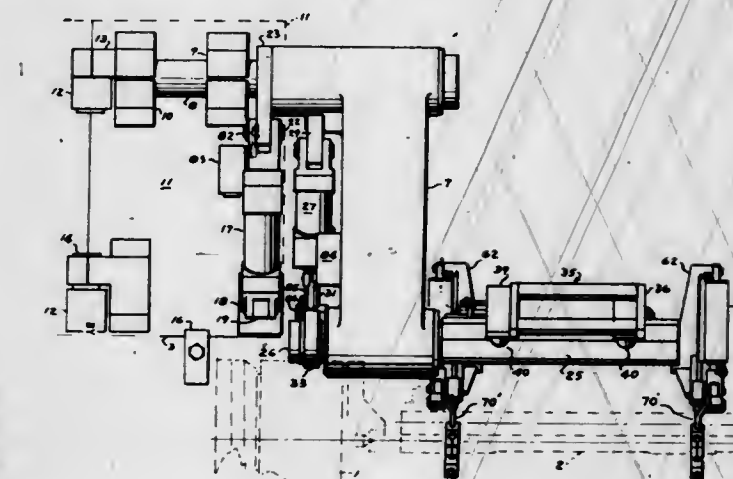
Constantine F. Cafolla, Waterloo, N.Y., assignor to SFM Corporation, Union, N.J.

Filed Sept. 25, 1968, Ser. No. 762,530

Int. Cl. B66c 1/62

U.S. Cl. 214—1

7 Claims



A crank arm movable in opposite directions about a first axis carries an elevator arm movable with the crank arm

about the first axis and movable relative thereto in opposite directions about a second axis. A pair of finger units carried by the elevator arm for movement therewith about the first and second axes and for movement relative thereto in opposite directions about a third axis close and open to engage and release a workpiece. The elevator arm and finger units also are movable as a unit in opposite directions along the second and third axes, respectively, for shifting a workpiece into and out of a chuck.

3,575,303

MEANS FOR TRANSFERRING NESTED COIL SPRINGS

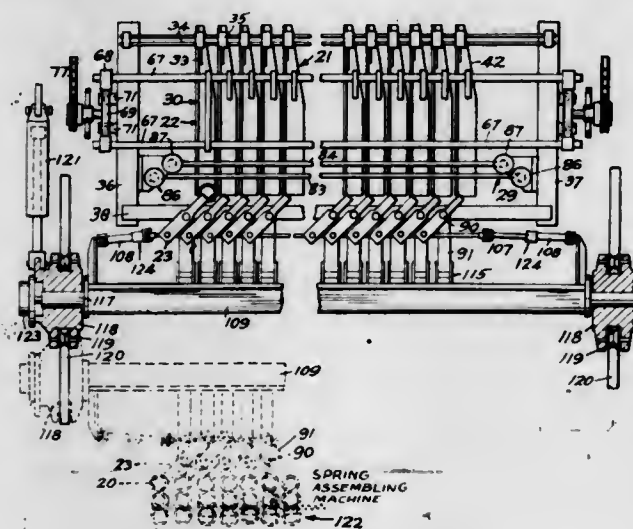
Edward M. Fischer, Kew Garden Hills, and Edwin G. Krakauer, Roslyn Heights, N.Y., assignors to Kay Manufacturing Corp., Brooklyn, N.Y.

Original application July 19, 1967, Ser. No. 654,413, now Patent No. 3,441,064, dated Apr. 29, 1969. Divided and this application Mar. 26, 1969, Ser. No. 810,492

Int. Cl. B66c 1/28

U.S. Cl. 214-1

11 Claims



Entire rows of coil springs are successively inserted into a conventional spring assembling machine by an individual unit for each spring of the row. Versatile grippers are operated to approach and recede from the row of springs to grip, invert, advance and rotate the row for the insertion of the entire row simultaneously and in the required position into the assembling machine which receives the row.

3,575,304

METHOD OF AND APPARATUS FOR LOADING A PLURALITY OF ARTICLES INTO A WORKHOLDER

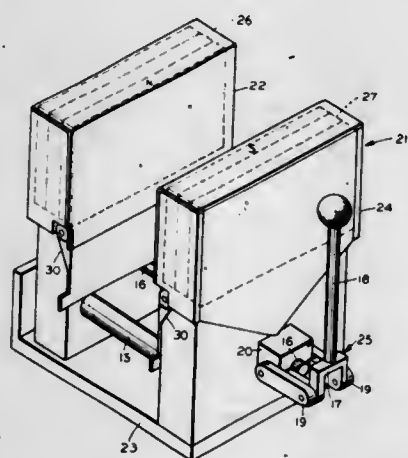
Jerry C. Hurst, Laureldale, and Samuel E. Kurtz, Reading, Pa., assignors to Western Electric Company, Incorporated, New York, N.Y.

Original application Jan. 20, 1967, Ser. No. 610,675, now Patent No. 3,480,165, dated Nov. 25, 1969. Divided and this application Nov. 1, 1968, Ser. No. 812,493

Int. Cl. B65g 57/00

U.S. Cl. 214-1

6 Claims



A mass of diodes having paramagnetic ends are placed and held in a magnetic field having horizontal, parallel lines of

magnetic force established by a pair of upstanding, spaced, parallel magnetic walls. Pivotaly attached to each of the walls is a flipper plate which is moved toward the magnetic field assuring that both ends of the diode are acted upon by the magnetic lines of force. Thereafter, the walls are moved toward each other, increasing the strength of the horizontal, parallel lines of magnetic force, and engaging and interleaving the mass of diodes.

3,575,305

WAREHOUSE HAVING A LOAD HANDLING ELEVATOR WITH POSITION-SENSING MEANS MOVABLE RELATION THERETO

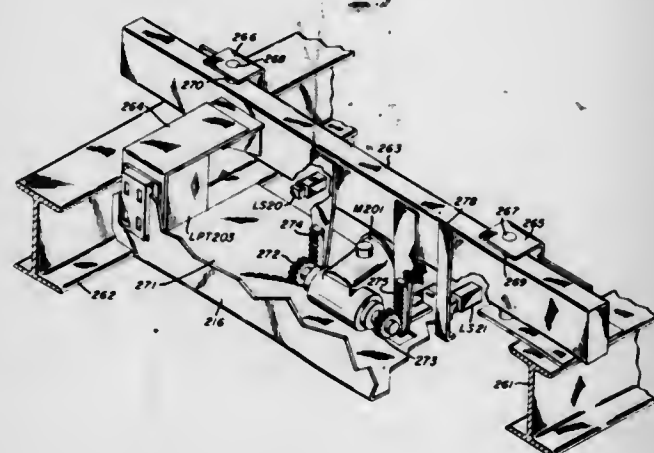
Arthur R. Burch, and Charles E. Bates, Battle Creek, Mich., assignors to Clark Equipment Company

Original application Apr. 18, 1966, Ser. No. 543,229. Divided and this application Dec. 10, 1968, Ser. No. 782,559

Int. Cl. B65g 1/06

U.S. Cl. 214-16.4

11 Claims



A material storage and handling system has a transfer vehicle and a stacker vehicle. The transfer vehicle is adapted to receive and carry the stacker vehicle and the stacker vehicle is adapted to carry and transfer material between the transfer vehicle and selected bins in a multi-aisle, multibin storage structure. The stacker vehicle has an elevator with a laterally movable platform for moving material into and out of the bins. The position of the elevator to the bins is sensed by reed relays on the elevator that sense magnetic strips on the elevator superstructure that are coded to indicate respective bins. To pick up or deposit the material when the lateral platform is extended, the reed relays are selectively raised or lowered a small amount to effect a vertical shift of the platform for picking up or depositing material.

3,575,306

INTEGRATED SINGLE-PIVOT AUGER BOX

James H. Obermeyer, and Nicholas R. Richards, Crown Point, Ind., assignors to Helix Corporation, Crown Point, Ind.

Filed Jan. 24, 1969, Ser. No. 793,679

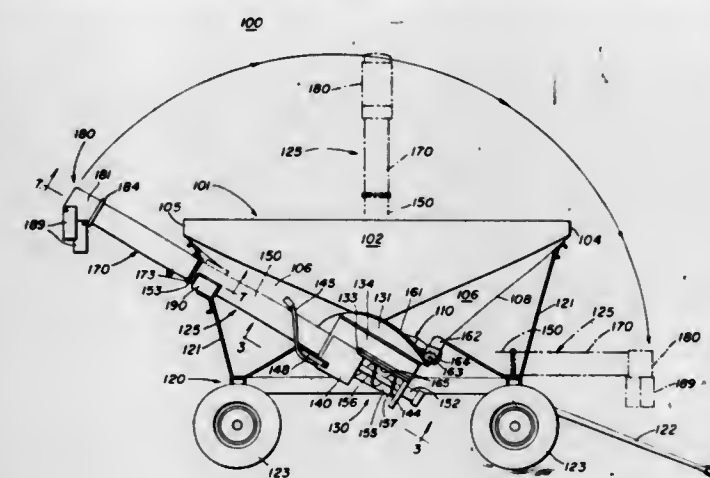
Int. Cl. B60p 1/40

U.S. Cl. 214-83.26

16 Claims

There is disclosed an integrated single-pivot auger box including a box body having a discharge opening and an elongated auger tube mounted on the box body for pivoting about a pivotal axis and having an aperture therein in registration with the discharge opening, the pivot axis being disposed at an acute angle of about 50° with respect to the horizontal and at an acute angle of about 65° with respect to the longitudinal axis of the box body, the auger tube being pivotal among a rest position disposed adjacent to the box body and a high discharge position extending outwardly and upwardly from the discharge opening with the discharge end well above the support surface and a low discharge position extending horizontally outwardly and with the discharge end

disposed a short distance above the support surface; in a modification, a spreader attachment is provided on the box



3,575,307

EARTHWORKING MACHINES

Gabriel L. Guinot, Le Plessis-Belleville, France, assignor to Societe Anonyme Poclain, Oise, France

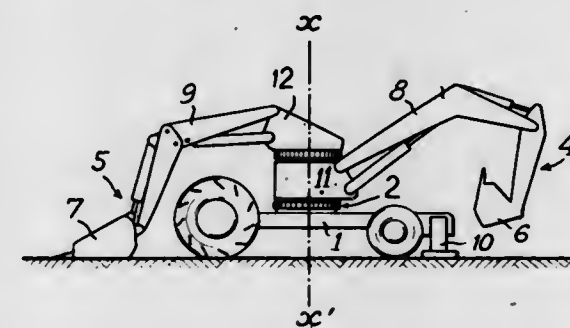
Filed Oct. 21, 1968, Ser. No. 769,125

Claims priority, application France, Nov. 13, 1967, 127,920

Int. Cl. E02f 3/75

U.S. Cl. 214-138

3 Claims



An earthworking machine with at least two beams supporting selected earthworking implements. The beams are mounted on the chassis and adapted to rotate. Actuating means are provided for the beams and earthworking implements.

3,575,308

CONVEYER-ENCLOSURE STRUCTURE FOR DUMP TRUCKS

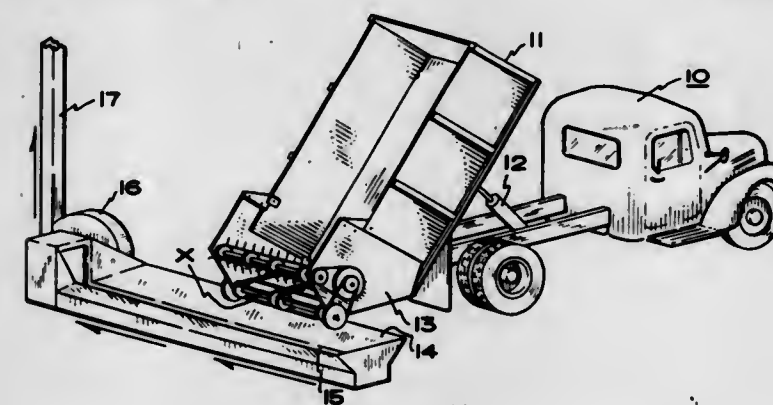
Herald Moon, 1189 N. Main, Farmington, Utah, and Stephen H. Moon, 213 East 1700 South, Bountiful, Utah 84010

Filed Dec. 9, 1968, Ser. No. 782,022

Int. Cl. B60p 1/04

U.S. Cl. 214-508

2 Claims



The present invention comprises a conveyer-enclosure structure, either made integral with or attachable to the bed

structure of a truck, for completing the enclosure of the bed structure when the latter is in horizontal position and, alternatively, when the bed structure is preferably tilted to dump position, for conveying in an even manner the contents of the bed structure, for selected purposes. In essence, the invention includes a rear, slanted, conveyer bed or floor, with which is operatively associated an endless, revolving conveyor. A finger-including spindle is disposed above the conveyor so as to break up clod accumulations of material as the same is discharged over the conveyor floor of the conveyor-enclosure structure.

3,575,309

ON AND OFF CARGO LOADING MECHANISM

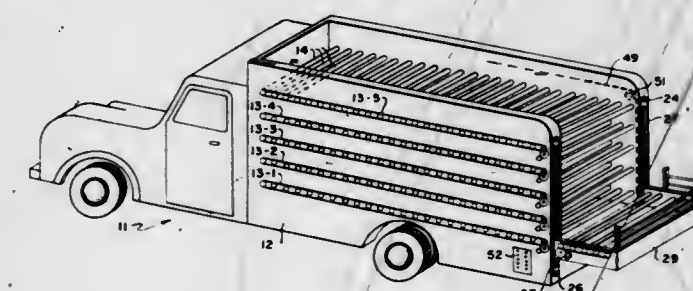
Wyatt B. Peterson, 1003 Tanglewood Drive, Clinton, Miss.

Filed Nov. 1, 1968, Ser. No. 772,641

Int. Cl. B60p 1/44, 1/52

U.S. Cl. 214-520

5 Claims



An apparatus for on-and-off loading of cargo in a truck body or the like including a plurality of vertically spaced horizontally extending motor-driven platforms enclosed within a cargo receiving area, each of said horizontal platforms comprising a plurality of spaced, propelled rollers and reversible drive means therefore for on-and-off loading; and a second vertically adjustable platform disposed adjacent an end of said spaced horizontal platforms comprising a plurality of spaced propelled rollers and reversible drive means therefore; and control means for selectively positioning said second platform relative to a determined one of said horizontal platforms and for actuating said drive means for said selected horizontal platform and said vertically adjustable platform whereby cargo may be selectively loaded and unloaded from said cargo storage space.

3,575,310

BALE HANDLING VEHICLE

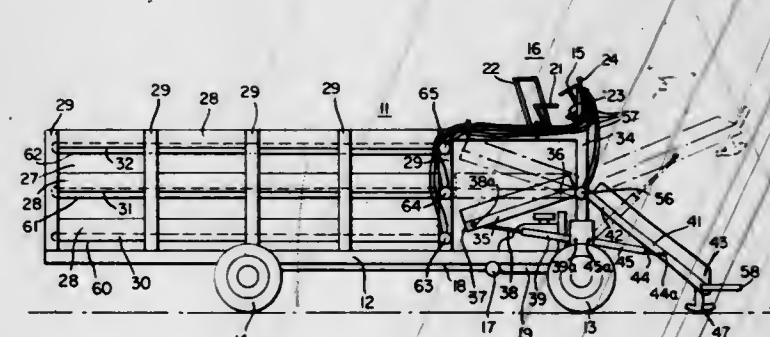
Leo H. Albertson, Rte. 6, Box 470, Lakeview, Oreg.

Filed Jan. 29, 1969, Ser. No. 795,117

Int. Cl. B60p 1/38

U.S. Cl. 214-522

5 Claims



A vehicle for loading and unloading bales of hay comprising a split apron providing a forward conveyor section pivotally fixed at the rear edge and movable at the forward

edge to various loading and unloading elevations and providing a rear conveyor section pivotally fixed at the forward edge and movable at the rear edge to the elevation of each of a plurality of conveyORIZED storage beds.

3,575,311

FRUIT CASE HAVING VENTILATION OPENINGS

De Laminne de Bex, and Gerard Etienne Marie, Gotem, Belgium, assignors to Nicolas Beck, Geneva, Switzerland

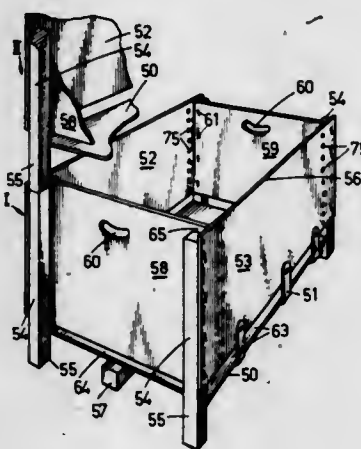
Filed Nov. 14, 1968, Ser. No. 775,715

Claims priority, application Belgium, Nov. 17, 1967, Apr. 30, 1968, 706,668; 714,482

Int. Cl. B65d 81/24, 9/18, 21/00

U.S. Cl. 217-42

4 Claims



A case to be assembled, to be used for products needing ventilation, particularly for fruits, comprises a bottom solid panel section; two pairs of opposite solid side panel sections; connection strip means extending between the bottom panel section and at least one pair of side panel sections and defining therebetween ventilation openings. A pair of battens is secured along the lateral edges of one pair of the side panels and means connect the other pair of side panel sections with said battens, after setting up the side panel, sections so as to define a housing with said battens disposed outwardly thereof. The battens project beyond the bottom in setup relation of the side panel sections to provide supports for the case, such battens stopping short from the upper edges of the side panel sections, with the height of the projection portion of said battens being greater than the distance separating the top thereof from the upper edges.

3,575,312

REFRIGERATED CARGO BOX

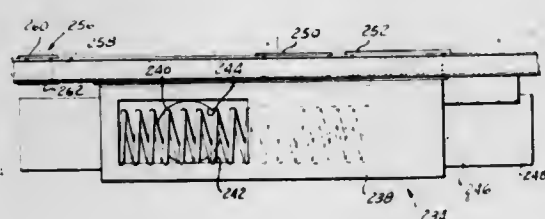
August G. Luisada, Waymart, Pa., assignor to Gentex Corporation, New York, N.Y.

Filed Feb. 10, 1969, Ser. No. 798,038

Int. Cl. B65j 1/02; B65d 7/12

U.S. Cl. 220-1.5

37 Claims



A refrigerated cargo box in which a generally rectangular pallet or base has a peripheral dovetail groove, the rear portion of which receives an outwardly directed curved tongue running along the bottom of a back panel having vertical sides and a trapezoidal top edge and the sides of which pallet receive inwardly directed tongues running along the bottoms of generally rectangular side panels. A dovetail groove running along the edge of the back panel above the bottom receives outwardly directed curved tongues of the side panels

in its vertical portions, upwardly directed tongues along the backs of two slant panels in slant portions of the groove and a downwardly directed tongue of a top or keystone panel in the horizontal portion of the back panel groove. I provide releasably clamped gaskets along the mating edges of the tops of the side panels and the lower edges of the slant panels and along the edges of the keystone panel and the upper edges of the slant panel to give the box sufficient structural integrity as to do away with the need for external tiedowns to hold the parts together. The front of the pallet groove receives an outwardly directed tongue running along the bottom of a door and manually releasably clamping means on all of the front edges of the side panels, slant panels and top panel hold the door in position. Sealing means are provided at all joints. A self-contained refrigerating unit is carried by the keystone panel.

3,575,313

MOUNTING MEANS FOR PLASTIC OUTLET BOXES

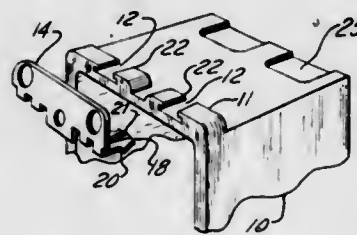
Robert S. Trachtenberg, Pittsburgh, and Julius Earl Kreuzer, Sewickley, Pa., assignors to Midland - Ross Corporation, Cleveland, Ohio

Filed May 12, 1969, Ser. No. 823,830

Int. Cl. H02g 3/08

U.S. Cl. 220-3.3

3 Claims



A plastic box, when molded, is provided with end extensions adapted to receive metal mounting elements. The metal mounts permit positive and repetitive use of fastening means, including self-threading screws, for the support of a receptacle and substantial flush mounting of the box, especially in thin wall construction.

3,575,314

HINGE ASSEMBLY FOR RECEPTACLES AND THE LIKE

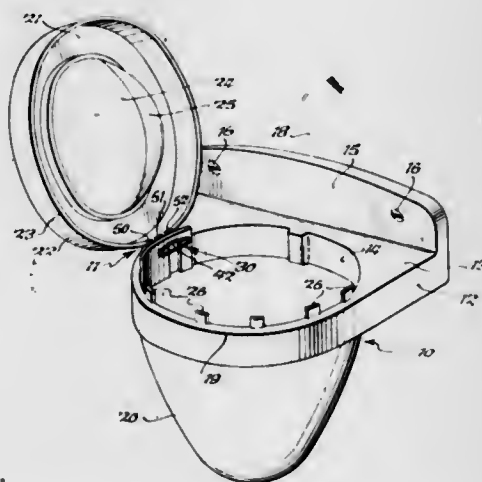
Francis J. Ihlenfeld, West Seneca, and Valentin E. Bell, Eden, N.Y., assignors to McDonald Products Corporation, Buffalo, N.Y.

Filed Apr. 10, 1969, Ser. No. 815,006

Int. Cl. E05d 1/02

U.S. Cl. 220-18

7 Claims



A hinge assembly for receptacles having a horizontally disposed bracket member provided with a curved surface opening therethrough and a cover member having a depending curved rim for covering the bracket opening.

A hinge-connecting member on the curved surface of the bracket opening has an opening therein which defines a horizontal slot adjacent the upper edge of the opening.

A wire hinge including a relatively large body portion and parallel arms extending therefrom is positioned so that the body portion abuts the inner surface of the connecting member and the arms extend outwardly through the slot.

The arms are bent at their ends to provide hook members which extend through openings into a channel bead along the edge of the cover-member rim for pivotally connecting the cover to the hinge.

3,575,315

STRINGED TEA BAGS AND DISPOSERS THEREFOR

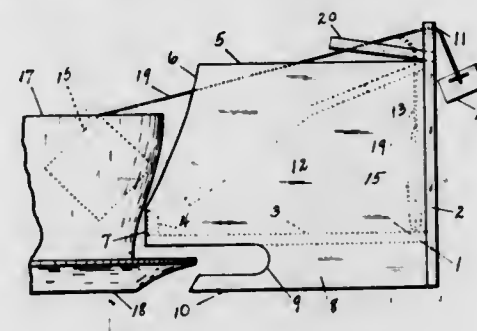
Louis W. Rosen, New York, N.Y. (2018 North Bay Road, Miami Beach, Fla., 33140)

Filed Apr. 17, 1968, Ser. No. 722,096

Int. Cl. A41g 19/00

U.S. Cl. 220-23.83

1 Claim



A self-contained disposer for transfer thereto from a conventional cup, whether centered in a saucer or not, of steeped tea bags of predetermined contour, so designed and positionable as to avoid outer spillage while in the course of such transfer, with means along the route, in keeping with the orientation of the movable bag, for automatically effecting the deposit of such bags in said disposer in an orderly array relative to their contour, and for simultaneously girdling the strings attached thereto in order to facilitate their manual removal from said disposer by a common grasp thereof.

3,575,316

BUTTON-FEEDING MEANS FOR SEWING MACHINES

Nereo Bianchi, Pavia, Italy, assignor to Necchi Societa Per Azioni, Pavia, Italy

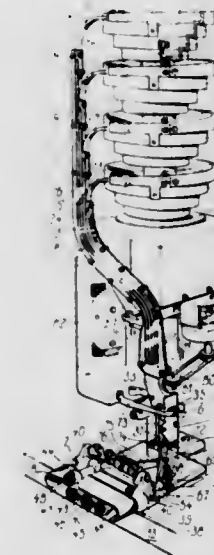
Filed Mar. 27, 1969, Ser. No. 811,163

Claims priority, application Italy, Apr. 12, 1968, 32,409A68

Int. Cl. B65h 1/00

U.S. Cl. 221-133

9 Claims



A button-feeding means for sewing machines comprising a plurality of button storage tanks and a device for selectively feeding buttons from any one of said tanks to the machine button clamp.

3,575,317
AN AEROSOL DUAL-DISPENSING SHUTOFF VALVE ADAPTED TO DISPENSE A PLURALITY OF FLUIDS FROM SEPARATE SOURCES AND TO SHUT OFF AUTOMATICALLY UPON THE DEPLETION OF ONE OF THE SOURCES

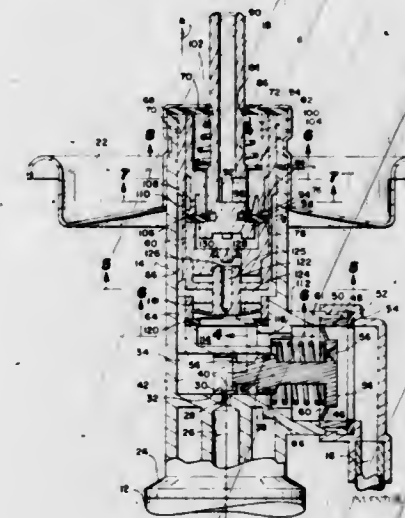
Samuel Benjamin Prussin, Los Angeles, and Jimmie L. Mason, Hacienda Heights, Calif., assignors to Dart Industries, Inc., Los Angeles, Calif.

Filed July 14, 1969, Ser. No. 841,344

Int. Cl. B65d 83/00

U.S. Cl. 222-66

8 Claims



An aerosol dual-dispensing shutoff valve adapted to dispense a plurality of separate fluids from separate sources through a common outlet; said valve having automatic shutoff valves sensitive to the respective separate fluid sources, whereby said valves may respond automatically to shutoff all of said sources from said outlet when any one of said sources is substantially depleted.

3,575,318

WATER PISTOL

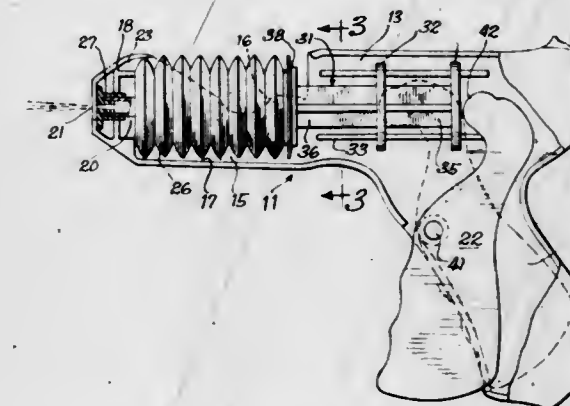
Oskar Kunz, Bergenfield, N.J., assignor to Jerome H. Lemelson, Metuchen, N.J.

Filed Apr. 14, 1969, Ser. No. 815,623

Int. Cl. A63h 33/00

U.S. Cl. 222-79

1 Claim



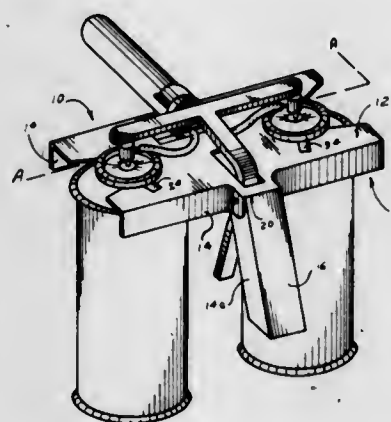
A toy water pistol having a detachably securable water-containing cartridge which serves not only as a reservoir for a substantial amount of water, but also as a biasing means for the trigger. The cartridge is constituted as a multiply-pleated bellows which is retracted in a simulated barrel portion of the pistol. This portion is open on one side, permitting the cartridge to be easily inserted and removed. The forward end of the bellows has an orifice through which water is ejected when the bellows is compressed by squeezing of the trigger. A plunger having longitudinally spaced transverse webs is guided by axially extending, circumferentially spaced ribs within the barrel.

3,575,319

PORTABLE DISPENSER FOR POLYMER FOAMS
Albert Saffanoff, Palos Verdes Peninsula, Calif., assignor to
The Upjohn Company, Kalamazoo, Mich.
Filed July 11, 1968, Ser. No. 744,064
Int. Cl. B05b 1/04

U.S. Cl. 222-135

4 Claims



A portable dispenser for polymer foam reaction mixtures is provided. The dispenser comprises a supporting frame with handle. Mounted on the supporting frame are two or more aerosol containers in which are stored, under pressure, the various components which, when brought together, give rise to the polymer foam reaction. Each container is provided with a valve. The valves on all containers can be actuated simultaneously by a trigger device mounted in the supporting frame. The fluids released from the individual containers are conducted separately through short conduits to a mixing chamber located in one end of a tubular dispensing nozzle. A stationary baffle, preferably comprising a series of discs having peripheral apertures permitting constricted passage of fluid on a tortuous path, is disposed in the tubular nozzle between the mixing chamber and the exit port. The baffle ensures adequate mixing of the reaction components prior to dispensing of the reaction mixture from the exit port. The mixing chamber and baffle are readily removable for cleaning and the aerosol containers are detachably mounted for easy replacement. The portable dispenser is particularly suited for dispensing polyurethane foam reaction mixtures.

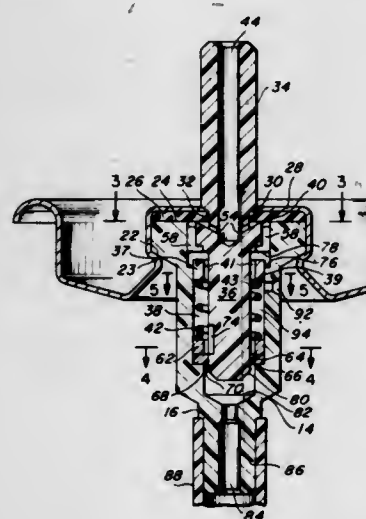
3,575,320

SEQUENTIAL VALVE

Samuel Prussin, Los Angeles, and Jimmie L. Mason, Hacienda Heights, Calif., assignors to Dart Industries, Inc.
Filed Dec. 17, 1968, Ser. No. 784,452
Int. Cl. B65d 47/26, 83/06

U.S. Cl. 222-144.5

4 Claims



A sequential valve having a housing and a valve means reciprocally mounted therein, said valve means being cooperable with three spaced-apart valve elements in said

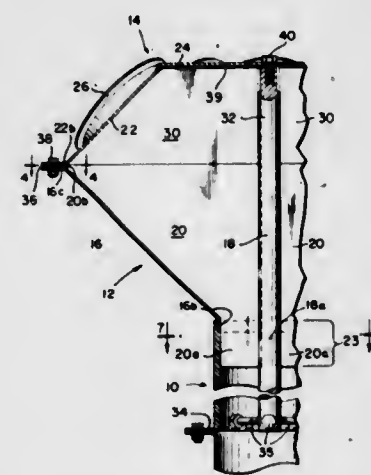
housing such that said valve means may be forced into open position sequentially with respect to said spaced valve elements in order that one fluid may flow around one of said valve elements after another fluid is shut off with respect to flow around another of said valve elements to thereby provide for purging of said valve at the end of each operating cycle thereof, and wherein one of said valve elements is operable to prevent the purging fluid from passing through the valve during a time when products such as paint, or the like, are being dispensed through the valve.

3,575,321

SOLID PARTICULATE MATERIAL BLENDER
Glen W. Fisher, Bellevue, Wash., assignor to Fisher Flouring Mills Company, Seattle, Wash.
Filed Nov. 5, 1968, Ser. No. 773,518
Int. Cl. B67d 5/60

U.S. Cl. 222-145

15 Claims



A blender for particularized solid material, such as cereal grain, comprises a discharge passageway and a plurality of segregated compartments extended into and terminating open ended within the passageway, such that a plurality of streams of material to be blended can be separately fed into the segregated compartments and therethrough into the discharge passageway.

3,575,322

METERING AEROSOL ACTUATOR WITH DOWNSTROKE DISCHARGE

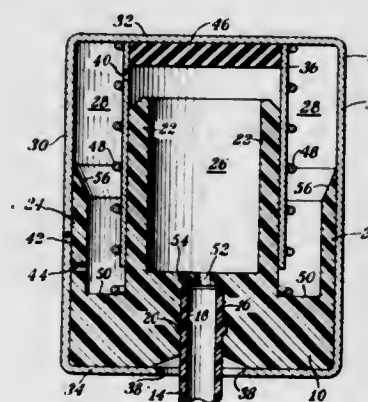
Gilbert S. Jordon, Monroe, and Norman Usen, West Haverstraw, N.Y., assignors to Union Carbide Corporation, New York, N.Y.

Filed Mar. 21, 1969, Ser. No. 809,232

Int. Cl. B65d 83/14

U.S. Cl. 222-402.20

9 Claims



An aerosol actuator assembly providing metered aerosol flow with discharge of aerosol formulation occurring upon a downstroke of the actuator.

3,575,323

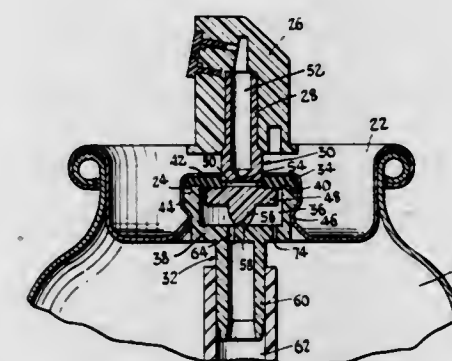
TILT-SLIDE ACTION AEROSOL VALVE
Wolf Steinman, Fairfield, Conn. assignor to Valve Corporation of America, Bridgeport, Conn.

Filed June 30, 1969, Ser. No. 843,906

Int. Cl. B65d 83/00

U.S. Cl. 222-402.21

6 Claims



A tilting-type aerosol valve comprising a cup-shaped valve housing which is covered by a resilient annular discharge-valve seat. A hollow valve stem extends through the valve seat and carries an annular valve shoulder inside the housing. The shoulder is engageable with the seat to close off the discharge. Within the housing there is a supporting boss on the valve stem, located below the valve shoulder and engageable with an opposite wall of the valve housing to normally maintain the valve shoulder and seat engaged whereby the valve is closed. The stem can be tilted, however, because the shoulder can compress a localized area of the seat. This separates another portion of the shoulder from the seat, whereby liquid can flow from the housing, but through the hollow valve stem.

3,575,324

MEASURING CAP

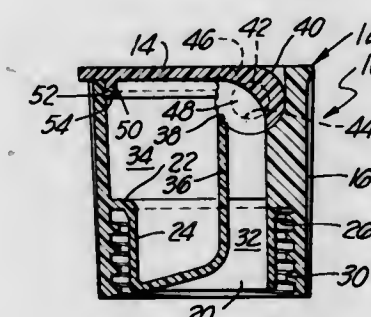
Robert E. Hazard, North Kingston, R.I., assignor to Polytop Corporation, Slatersville, R.I.

Filed May 1, 1969, Ser. No. 820,896

Int. Cl. G01f 1/46

U.S. Cl. 222-452

4 Claims



A measuring cap for use on containers is disclosed. This cap has a hollow cap body divided into an entrance chamber and a measuring chamber by an internal wall. A lid is rotatably mounted on the top of the cap body so as to be capable of being rotated between a closed position covering the top of the body and an open position in which the top of the body is uncovered. A valve member is attached to the lid so as to rotate therewith. This valve member is formed so that when the lid is in a closed position, the two chambers are in communication with one another, and so that when the lid is in an open position the entrance chamber is covered.

3,575,325

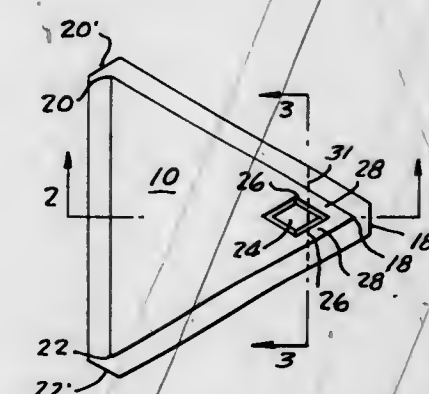
INDIVIDUAL DISPENSING PACKAGE FOR PULVERULENT MATERIAL

Carl M. Leeds, 23 Stone St., Augusta, Maine, and Ralph G. Schwartz, 54 Greenwood Drive, Millburn, N.J.
Continuation of application Ser. No. 609,228, Jan. 13, 1967, now abandoned. This application May 20, 1968, Ser. No. 738,367

Int. Cl. B65d 47/10

U.S. Cl. 222-541

2 Claims



A dispensing package for pulverulent condiments comprising a molded blister having the usual peripheral flange surrounding a vertical wall and an integral formation having exterior substantially vertical walls lying within the periphery of the blister and defining between the walls of the formation and the walls of the blister, a pair of channels for dispensing the contents of the blister, said channels being of variable cross-sectional area throughout their lineal extent and a planar closure for said blister geometrically in registry with said flange and sealed to said blister in the area of said flange. This is the first container to have a shaker outlet formed within its walls as part of the manufacturing process.

3,575,326

INFANT CARRIER

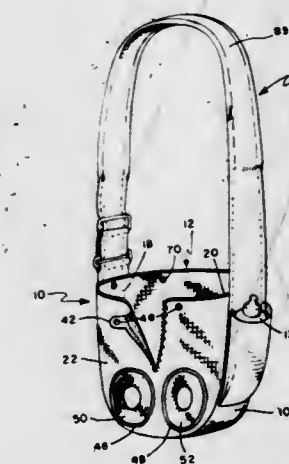
Walter G. Chappell, 1425 C. Spartan Village, East Lansing, Mich.

Filed May 27, 1968, Ser. No. 732,279

Int. Cl. A47d 13/02

U.S. Cl. 224-6

6 Claims



An infant carrier for supporting an infant from a person's shoulder comprising a flexible pouch centrally disposed with respect to its fore-and-aft direction within and attached to a part of the length of an endless flexible shoulder sling or strap, such part of the strap as well as the part thereof that extends over the shoulder being formed of a flattened tube of fabric within which a resilient cushioning material is secured. The strap is provided in its endless extent with means for adjusting its length. A flexible hood is detachably secured to the top rear and sides of the pouch for selectively sheltering the infant's head when the hood is attached. A slide closable pocket is provided on the rear exterior of the pouch, the same having a flexible waterproof liner, and a slide fastener

closable slot opening is provided in the top front of the pouch. A bottle pocket is provided on the exterior of the strap along one side of the pouch. Leg openings in the lower front of the pouch are provided with resilient annular bands for snug embracement of the infant's thighs, and the upper margin of the pouch is inwardly foldable to lessen the height thereof while reducing the internal diameter of the upper end of the pouch. The seat and the opposite sides of the pouch are formed of a single piece of fabric having its forward and rear edges stitched respectively to single pieces of fabric constituting the front and rear of the pouch.

3,575,327

FISHING ROD CARRYING CASES

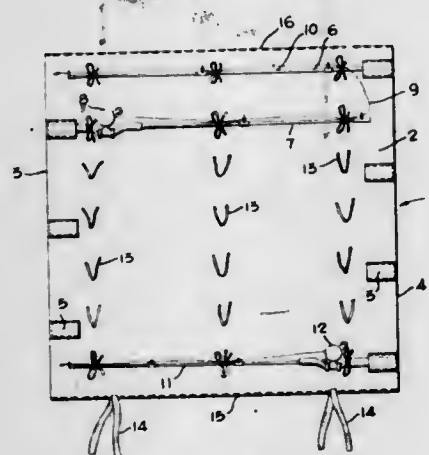
Toney Harrison, 4619 McPherson, St. Louis, Mo. 63108

Filed Feb. 17, 1969, Ser. No. 799,758

Int. Cl. A01k 97/08

U.S. Cl. 224-55

2 Claims



A fishing rod carrying case, as best shown in FIG. 1, constructed from an essentially rectangular panel or sheet of flexible material. Pockets are mounted on said sheet, disposed along two opposite edges of said panel, and opening inwardly. Attaching means in the form of tie strings are attached to said sheet surface in proximate alignment with the pockets so that when one end of a rod or rod segment is inserted in one of the pockets the rod is secured to the sheet by means of the tie strings. The tie strings and pockets are disposed so that the rods are essentially parallel to each other when secured. The carrying case is assembled for transportation by rolling in a direction transverse to the affixed rods. Tie strings are affixed to an edge of said panel which is parallel to said rods so that said carrying case is secured in its rolled configuration. Carrying means consisting of a strap with hook means at opposite ends thereof is coupled to the rolled up case.

3,575,328

DISPENSER FOR FLEXIBLE SHEET MATERIAL AND A PERFORATING MECHANISM ADAPTED TO BE USED THEREIN

Paul W. Jespersen, and Edward L. Bump, Stamford, Conn., assignors to Georgia-Pacific Corporation, Portland, Oreg.

Filed Jan. 24, 1969, Ser. No. 793,808

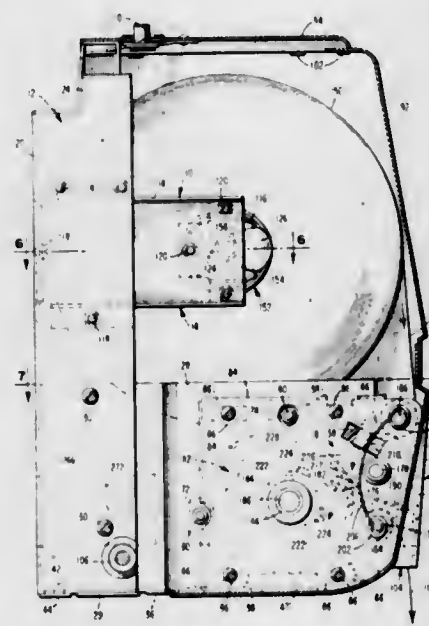
Int. Cl. B26f 3/02

U.S. Cl. 225-2

3 Claims

A mechanism for perforating a web of flexible sheet material which is adapted to be used in a flexible sheet material dispenser, said mechanism comprising: a rotatably mounted roller, a rotatably mounted knife positioned adjacent the roller and having a radially outward portion defining a cutting edge for perforating the web as the web passes between the roller and the knife, the roller being operatively connected to the knife for synchronous rotation therewith and having a slot therein for receiving the radially outward knife portion as the knife rotates past the roller, and means associated with the knife for orienting the cutting edge sub-

stantially in the direction in which the radially outward knife portion moves with respect to the web during the entrance of



the portion into the slot so that when the portion enters the slot the cutting edge will effectively perforate the web.

3,575,329

JACKET SEPARATOR FOR FLAT STRIP CABLE

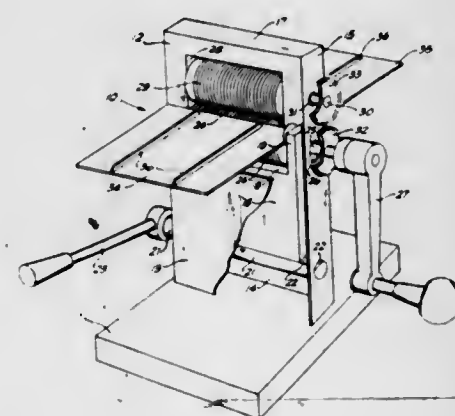
Ad R. Hannabery, 154 N. Gilbert St., La Habra, Calif. 92633

Filed Jan. 16, 1969, Ser. No. 791,677

Int. Cl. B26f 3/02; B23d 19/06

U.S. Cl. 225-97

12 Claims



A mechanism for separating the individual conductors of a flat strip cable comprising a pair of rollers, each of which has a plurality of radially extending annular teeth, the spacing between adjacent teeth on each roller being equal to twice the distance between adjacent conductors of the flat strip cable. The individual teeth have a concave outer end and the rollers are positioned in parallel spaced relationship so that the teeth on one roller are aligned with the spaces between the teeth on the other roller. A cam mechanism, operatively coupled to one of the rollers, is operative to separate the rollers so that the cable can be positioned therebetween and to bring the rollers together whereby the teeth thereon engage the cable. The teeth operate to urge alternate conductors in opposite directions thereby separating them. A crank mechanism, connected to one or both of the rollers, is operative, upon rotation, to simultaneously feed the cable out of the rollers and separate the conductors.

3,575,330

INTERMITTENT WEB-TRANSPORTING DEVICE

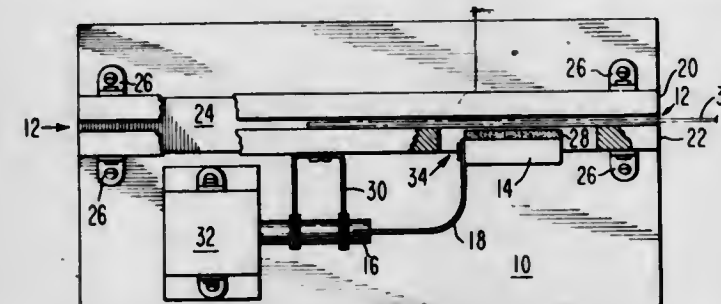
Albert Sulderman, Southfield, Mich., assignor to Burroughs Corporation, Detroit, Mich.

Filed Aug. 28, 1969, Ser. No. 853,899

Int. Cl. B65h 17/36

U.S. Cl. 226-164

3 Claims



The disclosure embodies a friction pad for intermittently transporting a web and includes mechanism for driving the pad and directing its motion. The friction pad is resiliently mounted on a reciprocable member and imparts to the web a driving force which is the resultant of a forward component of force from the reciprocable member and a normal component of force resulting from the obliquely offset disposition of the pad with respect to the reciprocable member.

3,575,331

WEB-GUIDING APPARATUS

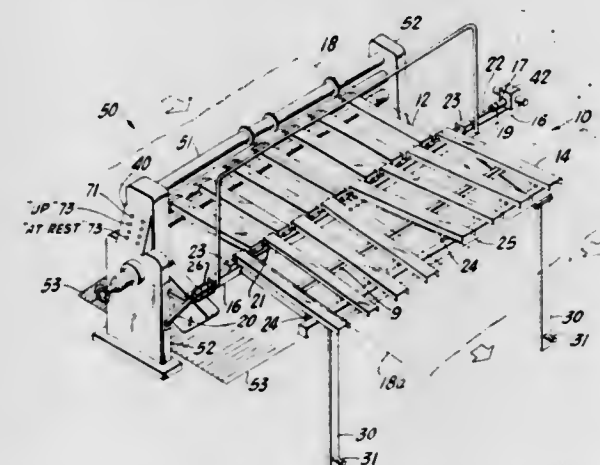
David Middleman, Baltimore, Md., assignor to Kopper Company, Inc.

Filed Nov. 10, 1969, Ser. No. 875,291

Int. Cl. B65h 29/58

U.S. Cl. 226-199

7 Claims



A lead-in table for guiding a plurality of horizontally moving webs into at least two horizontally diverging paths toward subsequent processing machinery such as a cutoff knife. The table includes a first set of slats which receives the webs from a slitter-scoring and guides them to a second sequentially adjoining set of slats. The first set is pivotable about an end to provide clearance for indexing the slitter-scoring or for setup of the heads on the slitter-scoring. The second set of slats guides the webs to the cutoff knife. Selected ones of the slats of the second set are pivotable to form variable-width guides corresponding to selected widths of the webs to guide them along horizontally diverging paths to the vertically displaced cutting rolls of the cutoff knife.

3,575,332

BARREL RETENTION MEANS FOR POWER-ACTUATED TOOLS

Lawrence J. Brunelle, East Haven, Conn., assignor to Olin Mathieson Chemical Corporation

Filed May 29, 1968, Ser. No. 733,058

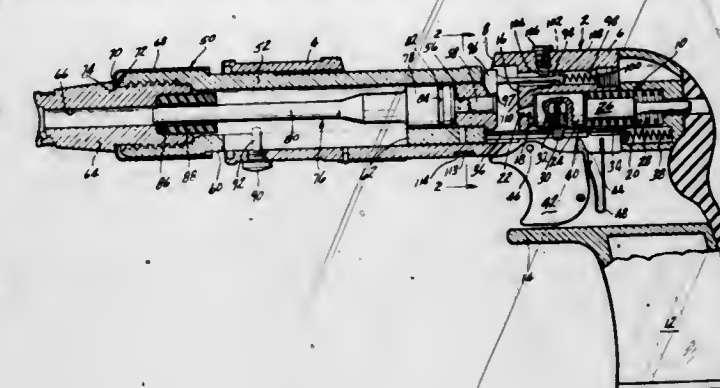
Int. Cl. B25c 1/14

U.S. Cl. 227-10

5 Claims

A power-actuated fastening tool having a housing in which a barrel is telescopically received for movement between a

breech-open and a breech-closed position. At least one recess is provided on the barrel member into which a detent



member, mounted on the housing, extends to releasably hold the barrel adjacent its breech-closed position.

3,575,333

BEAM-LEAD BONDING APPARATUS

Frederick W. Kulicke, Jr., Philadelphia; Edmund D. Haigler, Hatboro, and Albert Soffa, Wynnwood, Pa., assignors to Kulicke and Soffa Industries, Inc., Fort-Washington, Pa.

Filed Nov. 21, 1968, Ser. No. 777,656

Int. Cl. B23k 1/06, 5/20

U.S. Cl. 228-1

17 Claims



An apparatus for alternately or sequentially connecting electrical leads of a beam-lead device to a carrier. A bonding tool is mounted in a housing and is pivoted about a focal point at the working face of the tool to alternately engage the electrical leads connecting the tool and the carrier.

3,575,334

FRICTION WELDING APPARATUS

Alex F. Stamm, Rochester, Mich., assignor to Rockwell-Standard Company, Pittsburgh, Pa.

Filed June 30, 1967, Ser. No. 650,505

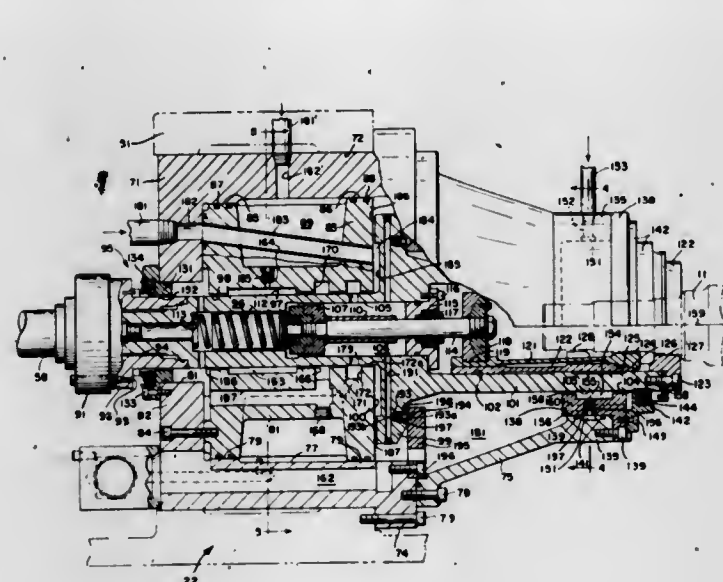
Int. Cl. B23k 27/00

U.S. Cl. 228-2

14 Claims

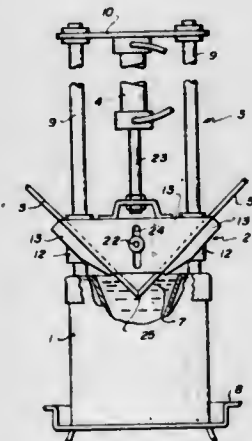
A friction welding apparatus is particularly adapted for the friction welding of relatively heavy workpieces, as for example the center section and wheel bearing end spindles of a drive axle housing, and comprises special hydrostatic bearing equipped devices for mounting the rotating workpieces. Each such device is mounted for axial displacement and comprises a rotatable arbor assembly to which the rotatable workpiece, such as a wheel bearing end spindle, is clutched and the arbor assembly is rotatably supported in a housing by two axially spaced hydrostatic journal bearings. Front and rear hydrostatic thrust bearings are provided between the arbor assembly and the housing. Oil under suitable pressure is supplied to both the journal and thrust hydrostatic bearings, and

controls are provided for attaining and maintaining suitable fluid pressure levels at these bearings. One aspect of control insures that the workpiece is not secured to the arbor assembly until journal bearing oil pressure reaches a certain



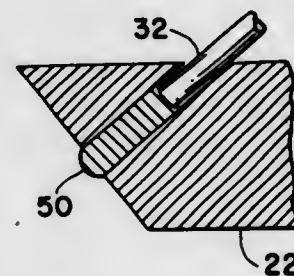
level. Oil is forced under high pressure into the bearings through specially arranged passages and after being discharged from the hydrostatic bearings returns to a sump at lowered pressure.

3,575,335
APPARATUS FOR MAKING WINDOW SPACER CORNER CONNECTIONS
Hans Baden, St. Albert, Alberta, Canada, assignor to Custom Glass Ltd., Edmonton, Alberta, Canada
Continuation-in-part of application Ser. No. 519,687, Jan. 10, 1966. This application Oct. 23, 1968, Ser. No. 769,993
Int. Cl. B23k 1/08
U.S. Cl. 228-40 4 Claims



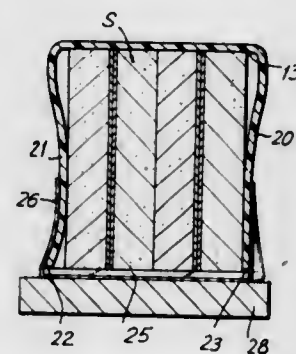
An apparatus for forming the ends of two window spacers into a mitred corner and dipping the corner in solder to effect a seal is provided. A V-notched jig receives the spacer ends to guide them into mitred, abutting relationship. A clamping jig locks the spacers in this position. The clamping jig is vertically movable to dip the corner into molten solder.

3,575,336
SOLDERING DEVICE
Franklin W. Booth, Hampton, Va., assignor to the United States of America as represented by the Administrator of the National Aeronautics and Space Administration.
Filed Nov. 21, 1968, Ser. No. 777,764
Int. Cl. B23k 3/04
U.S. Cl. 228-53 3 Claims



A soldering tool and method which utilizes controlled capillary attraction of the solder and the tool to regulate solder flow into and out of the tool tip and on and off the workpieces.

3,575,337
FOOD PACKAGE
Daniel Bernhardt, Palsade, N.J., assignor to Paul Richard Karan, Trustee
Filed Aug. 21, 1969, Ser. No. 851,850
Int. Cl. B65d 1/00
U.S. Cl. 229-8 4 Claims

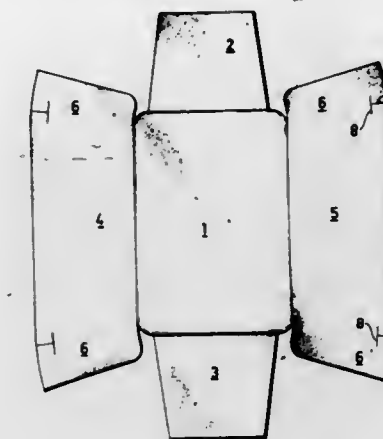


A food package, especially for sandwiches, particularly adapted to be closed by a heat-sealing operation and characterized by insulating the enclosed food from the heat inherent in forming the heat seal. The shape of the package is modified in the course of the closure operation to grip against the sides of the bread slices, thus to limit relative movement of the article and package, and assure that the contents of the sandwich are preserved intact.

3,575,338
PACKAGE COMPRISING AN OUTER CARTON BLANK AND A LINING AND PROVIDED WITH MEANS PREVENTING WEDGING
Rolf Magnus Dilot, Lund, Sweden, assignor to A B Akerlund & Rausing, Lund, Sweden
Filed Sept. 2, 1969, Ser. No. 854,575
Claims priority, application Sweden, Oct. 3, 1968, 13337/68
Int. Cl. B65d 5/56, 21/02
U.S. Cl. 229-14 3 Claims

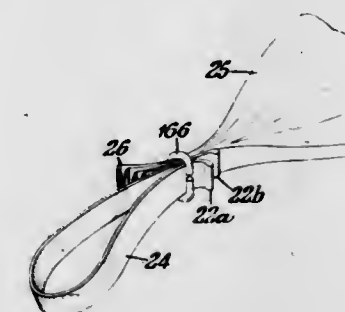
Projections at the edge of traylike packages are provided to prevent wedging when stacking a plurality of packages.

The projections are made by flaps formed by slots at the upper edge of the carton, which flaps are depressed outwardly when a plastic foil is deep-drawn into the package.



upper edge of the carton, which flaps are depressed outwardly when a plastic foil is deep-drawn into the package.

3,575,339
CASING CLOSURE
Vytautas Kupcikevicius, Chicago, Ill., assignor to Union Carbide Corporation
Original application Aug. 20, 1966, Ser. No. 575,462, now Patent No. 3,483,801, dated Dec. 16, 1969. Divided and this application Aug. 4, 1969, Ser. No. 862,120
Int. Cl. B65d 33/00, 33/14
U.S. Cl. 229-54 2 Claims

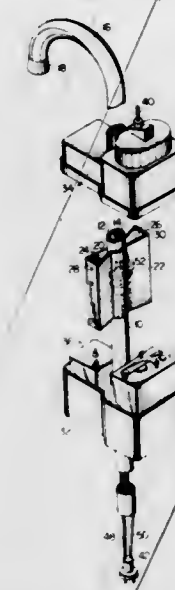


The term "food casing," as employed throughout this application and in the appended claims, is intended to include, but not be restrictive of, those tubular food casings fabricated from such materials as collagen, cellulose, regenerated cellulose, cellulose having fibers embedded therein, polyvinyl chloride, polypropylene, polyethylene, polyvinylidene chloride, and the like. These food casings are also known by those skilled in the art as "sausage casings" and are generally employed as containers or molds into which is stuffed or encased a food item, such as raw meat emulsions, meat chunks, discrete meat cuts and the like. These encased food items can then be frozen or, if desired, processed, as by cooking and curing, and items such as salami and bologna sausages, spiced meat loaves, ham loaves, hams, and the like can be obtained.

3,575,340
ANIMAL PROD
Franklin R. Klebold, Box 266, Colvis, N. Mex.
Filed Nov. 20, 1968, Ser. No. 777,228
Int. Cl. B68b 1/100
U.S. Cl. 231-2 6 Claims

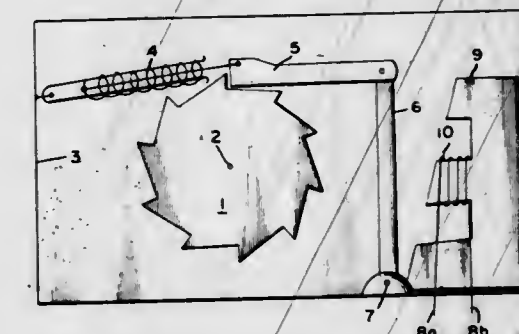
An animal prod, including a cane-shaped extruded, thermoplastic body element having channels formed longitudinally therethrough, a pair of thermoplastic clamp elements having their central portion formed about the cane and clamped thereto adjacent the hook end of the cane, and extending outwardly and terminating in perpendicular end sections overlapping one another, a generally rectangular container of thermoplastic material made up of two half sections passing over the cane and over the clamping elements and

forming thereby a compartment on one side of the cane for a battery and a compartment on the opposite side of the cane for an induction coil, a switch mounted atop the container adjacent the hook end of the cane, electrical line means connecting the primary of the induction coil through the battery



and the switch, electrical line means leading from the secondary of the induction coil downwardly through the channels formed in the cane element to the end opposite the hook portion and rigid probe elements extending from the end of the cane and connected to the second-mentioned electric line means to form a spark gap.

3,575,341
RATCHET DRIVING MECHANISM
Stephen C. Tarver, Gillette, Wyo., assignor to Guaranteed Financial Services, Inc.
Filed Aug. 28, 1967, Ser. No. 663,887
Int. Cl. G60m 1/00
U.S. Cl. 235-91 1 Claim

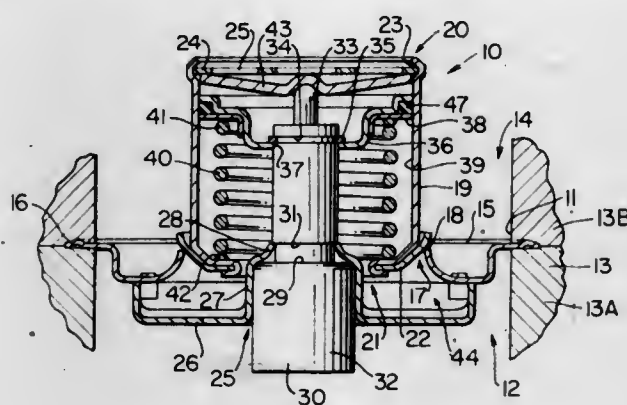


A mechanism for converting intermittent electrical current into a driving force to produce rotary mechanical motion in accurately controlled amounts, thus making it possible to turn an attached wheel the desired fraction of a single revolution by controlling the number of pulses of electric voltages applied to the device. This is accomplished by using a spring-driven pawl to drive a ratchet wheel and an electromagnetic means of retracting the pawl so that the number of retractions is dependent on the number of pulses of electric voltage applied across the solenoid of the retracting electromagnet.

3,575,342
THERMOSTATIC VALVE CONSTRUCTION AND THE LIKE
Louis M. Puster, Knoxville, Tenn., assignor to Robertshaw Controls Company, Richmond, Va.
Filed June 20, 1969, Ser. No. 835,087
Int. Cl. F01p 7/16
U.S. Cl. 236-34 20 Claims

A thermostatic valve construction having a support means provided with a valve seat and a temperature-responsive

device having a first part fixed to the support means and having a second part movable relative thereto in response to the temperature sensed by said device. A movable valve member



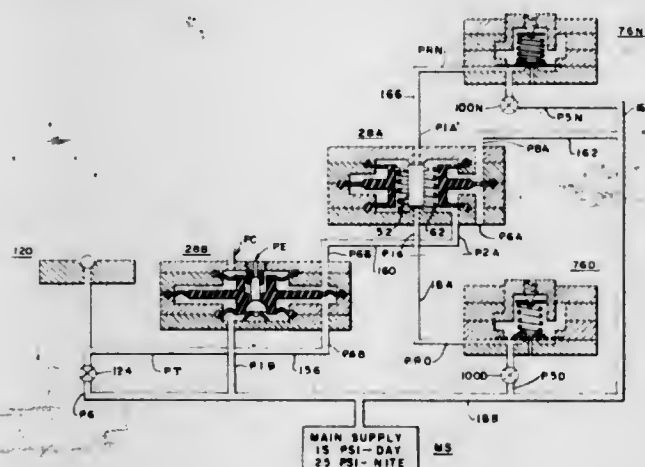
opens and closes the valve seat. A first compression spring is disposed between the fixed part of the temperature-responsive device and the movable valve member to tend to move the valve member to its closed position and a second spring means is disposed between the valve member and the movable part of the temperature-responsive device to tend to move the valve member to its open position when the second spring means is under compression whereby the movable part of the temperature-responsive device is adapted to compress the second spring means a predetermined amount before causing the valve member to open in opposition to the force of the first spring means when the temperature-responsive device senses a predetermined temperature and a particular pressure differential exists across the valve member.

3,575,343

CONDITION RESPONSIVE PARAMETER CONTROL MEANS

Kenneth G. Kreuter, and Klaus P. Mueller, Goshen, Ind., assignors to Robertshaw Controls Company, Richmond, Va. Original application Nov. 16, 1966, Ser. No. 594,851, now Patent No. 3,528,455. Divided and this application Dec. 15, 1969, Ser. No. 884,947

Int. Cl. G05b 1/10; G05d 23/275; G05b 11/48
U.S. Cl. 236-47 9 Claims



A unitary, multiple diaphragm structure is provided which includes integral valve means and flow passages, the structure being substantially entirely composed of a flexible resilient material. Additional rigid inserts are integrally molded into the basic structure to provide additional valving and seating arrangements for desired functional adaptability. The diaphragm structure is combined with hollow housing structures comprised of stacked plates or the like for mounting the peripheral portions of the multiple diaphragms of the unitary structure. Selective porting and pressure connections in the housing structures effect a family of differential pressure responsive modules or devices such as relays, comparators, and the like. A simplified temperature to pressure trans-

ducer is provided in which a compound bimetal spring selectively retains a spherical valve in an exhaust port to provide a modulated pressure output as a function of temperature changes. The transducer and family of differential pressure responsive modules are combined to provide a plurality of parameter control systems having a wide variety of operating modes. Several of the systems are convertible from one operating mode to another by merely changing the supply pressure magnitudes. The transducer is characterized by the fact that it requires no changeover adjustment to adapt it to the multiple modes of the systems.

3,575,344

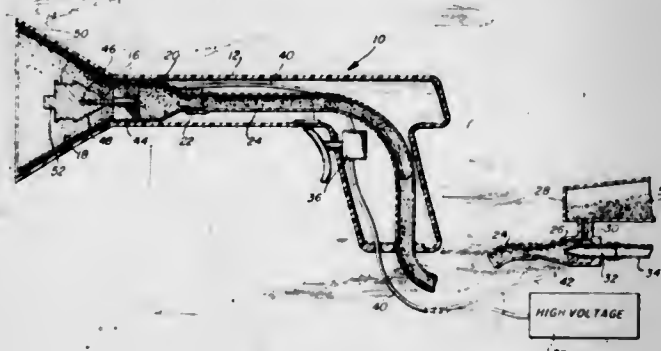
NOZZLE AND APPARATUS FOR ELECTROSTATIC POWDER SPRAYING

Henry R. Angelico, Devon, Conn., assignor to Electrostatic Equipment Corp., Fairfield, Conn.

Filed Sept. 22, 1969, Ser. No. 859,709
Int. Cl. B05b 5/00

U.S. Cl. 239-15

9 Claims



A nozzle for an electrostatic powder spray apparatus has a plug member which is generally circular in cross section mounted axially within a generally circular passage therethrough so as to provide an annular flow path therebetween. Adjacent its outlet end the plug member has a circumferential groove which serves to radially divert the powder particles that pass through the annular flow path.

3,575,345

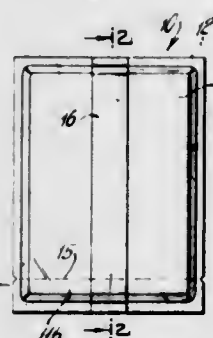
DEODORIZER DISPENSER

Fred H. Buck, Jr., 189 Old Denville Road, Boonton Township, Morris County, N.J. 07005

Filed June 5, 1969, Ser. No. 830,708
Int. Cl. A24f 25/00; A61f 9/04

U.S. Cl. 239-34

2 Claims



A packet is provided having sealed therein paper or the like impregnated with oil and a perfume substance. The packet has attached thereto adhesive means for affixing the packet to the wall of a bathroom, car or other enclosure surface. When the packet is opened perfume will slowly evaporate therefrom creating a pleasant odor in the surrounding air.

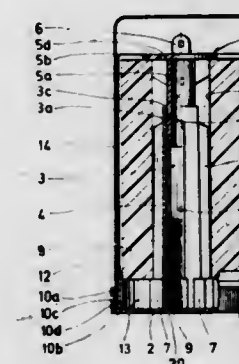
3,575,346

BLOCK-AND-HOLDER ARRANGEMENT AND HOLDER PERTAINING THERETO

Willy Roth, Aargau, and Rene Hauri, Baselland, Switzerland, assignors to Gely Chemical Corporation, Ardsley, N.Y.

Filed Dec. 24, 1968, Ser. No. 786,718
Claims priority, application Switzerland, Jan. 26, 1968, Dec. 16, 1968, 1251/68; 18697/68

Int. Cl. A24f 25/00
U.S. Cl. 239-57 15 Claims



An arrangement comprising a block and a holder device therefor is disclosed, comprising:

1. a block or shaped body of a material containing at least one active, for instance an insecticidal, substance which it gradually releases, e.g. in vapor form, to the medium surrounding the body, e.g. into the surrounding air, which block has at least one, preferably central, bore; and

2. the holder device for the body, having two centering means which project from both ends into the bore of the body, and wherein passages are provided in the holder device and associated with the said centering means, whereby fresh supplies of the surrounding medium can enter the central bore at one end and can leave the bore at the other end laden with fluid, e.g. gaseous particles of the active substance escaping from the walls of the bore, while all the time fluid particles of the active substance are also released from the outer surface of the block directly into the medium, e.g. air, surrounding the block-and-holder arrangement.

3,575,347

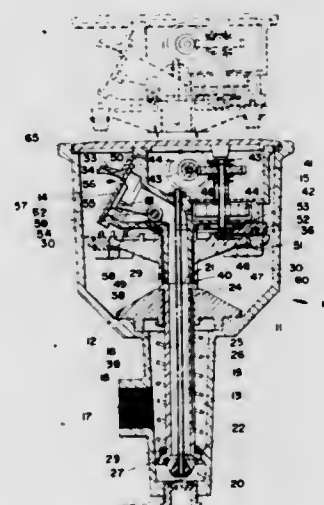
ADJUSTABLE SPRINKLER

John A. Carlson, Englewood, Colo., assignor to The Gates Rubber Company, Denver, Colo.

Filed Mar. 11, 1969, Ser. No. 806,072
Int. Cl. B05b 3/00, 15/10

U.S. Cl. 239-97

14 Claims



An adjustable pattern water sprinkler having improved adjusting means and an improved nozzle to effect substantially equal water distribution over a selectively variable pattern area.

3,575,348

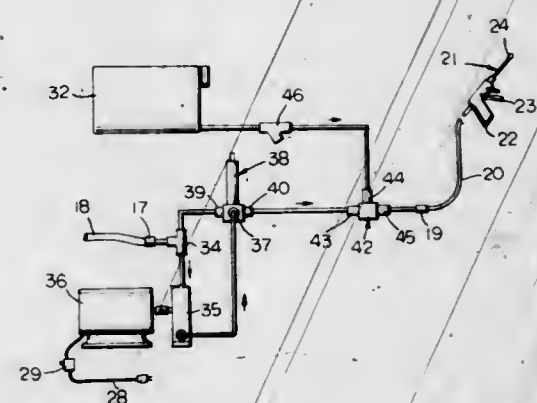
DEVICE FOR WASHING AND RINSING

Robert H. MacKay, Fort Wayne, Ind., assignor to Lincoln Manufacturing Company, Inc., Fort Wayne, Ind.

Filed Sept. 9, 1968, Ser. No. 758,447
Int. Cl. B05b 9/00

U.S. Cl. 239-127

2 Claims



A portable cart is provided with a pump which receives water through a hose connection, and pumps this water through a pressure relief circuit to a venturi injector. The injector receives a liquid detergent or the like, and mixes this detergent with the water. The mixture is supplied to a spray nozzle which is hand operated. The ratio of detergent and water can be varied as a function of the rate that liquid is dispensed from the nozzle.

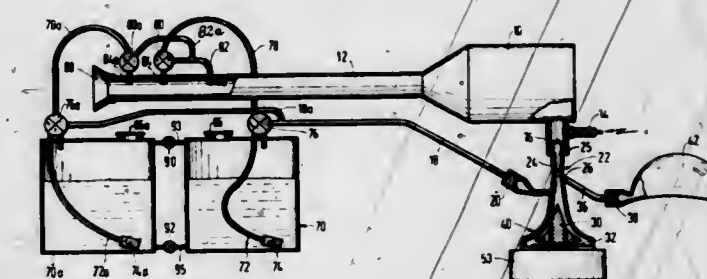
3,575,349

SPRAYING APPARATUS

Karl-Heinz Stahl, Zum Saibling 20, 7773 Nussdorf, Baden-Württemberg, and Fritz M. Fend, Thurmayrstrasse 11, 84 Regensburg, Germany, assignors to said Fend assignor to said Stahl

Filed Mar. 14, 1969, Ser. No. 807,204
Claims priority, application Germany, Mar. 20, 1968, July 16, 1968, P. 17 57 005.7; P. 17 82 076.7

Int. Cl. B05b 1/24
U.S. Cl. 239-135 10 Claims



In a spraying apparatus in which a liquid is atomized in a pulsating stream of combustion gas discharged from a combustion chamber equipped with a carburetor for use of liquid fuel, a valve is interposed between the tank for the sprayed liquid and an atomizing nozzle in the exhaust pipe of the combustion chamber and is automatically closed when the pressure in the exhaust pipe is reduced below the value normally maintained by the stream of combustion gas, thus shutting off the flow of spray liquid to the hot exhaust pipe when the liquid could flow backwards into the combustion chamber or burn the operator.

3,575,350

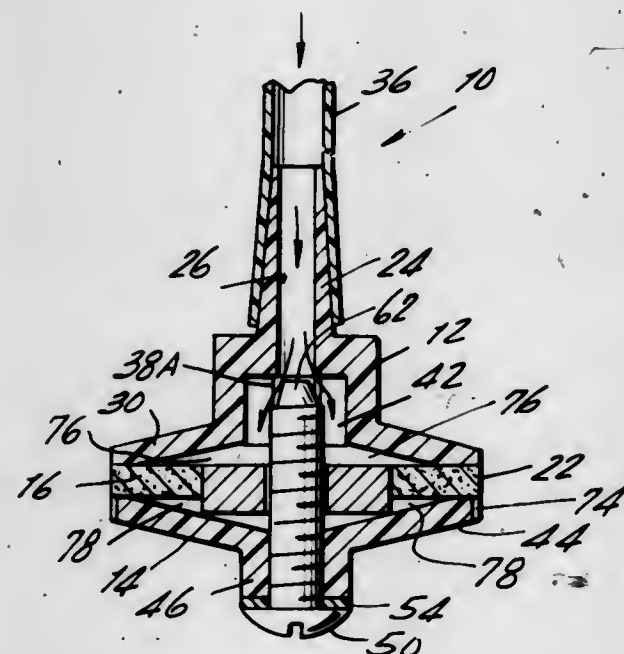
AIR STONE FOR AN AQUARIUM

Allan H. Willinger, 56 Gall Drive, New Rochelle, N.Y. Filed Feb. 15, 1967, Ser. No. 616,374

Int. Cl. B01f 3/04; A01k 63/00
U.S. Cl. 239-145 5 Claims

An air stone for an aquarium comprising an air-receiving element, a baseplate connect to the air-receiving element and a water insoluble annular-shaped fiber mat. The fiber mat

contains a weight therein in concentric relation thereto and the mat is disposed intermediate the air-receiving element of the baseplate. The air stone is adapted to supply a uniform stream of air bubbles to the water contained in the aquarium when connected to an air supply. The air-receiving element further comprises an air inlet tube, an air inlet aperture located therein, a shoulder portion located at the base of the air inlet tube and a cap portion disposed at the base of the shoulder portion. The air inlet tube, the shoulder portion and the cap portion are integrally connected. The air inlet tube flares outwardly toward the base juncture with the shoulder



portion so that when an air supply tube from the air supply is connected to the air inlet tube the air supply tube is held in airtight relationship therewith. The air-receiving element has a cloverleaf-shaped aperture disposed in the cap portion and extending into the shoulder portion from the face of the cap portion. The cloverleaf-shaped aperture defines three arc portions in circular relationship to each other in the central portion of the cloverleaf-shaped aperture. The baseplate comprises a cylindrical-shaped element and a cap portion integrally connected thereto with an aperture extending into the cap portion. The air-receiving element and the weight having a central aperture. The arc portions form walls. The baseplate and the fiber mat are connected by threaded screws having a tapered end which pass through the aperture in the cylindrical element and cap portion thereof. Finally the screw is thread into the walls formed by the arc portions of the cloverleaf-shaped aperture to an extent to allow the passage of air over the tapered end of the screw. The air courses downwardly through the air inlet aperture into the cloverleaf-shaped aperture and thence outwardly through the fiber mat and emerging as uniform air bubbles in the water from the periphery of the fiber mat with the result that uniform aeration of the aquarium is achieved.

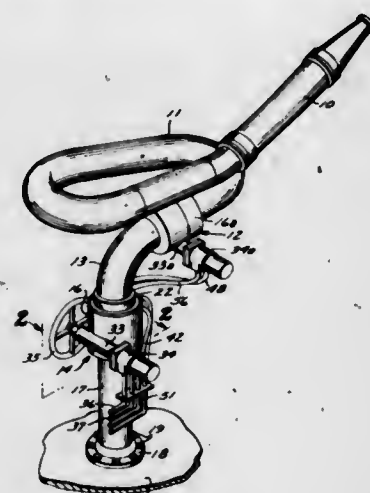
3,575,351 HYDRAULIC MONITOR INCORPORATING IMPROVED POWER-OPERATED AND MANUALLY OPERATED SWIVEL JOINT

Leonard A. Warren, Whittier, Calif., assignor to Stang Hydraulics Inc., Orange, Calif.
Original application Aug. 28, 1968, Ser. No. 755,919, now abandoned. Divided and this application Apr. 9, 1970, Ser. No. 26,878

Int. Cl. B05b 3/02, 15/08; F16h 1/16
U.S. Cl. 239-227 5 Claims

The low-friction swivel joint in the hydraulic monitor has incorporated therein a worm wheel, the latter being rotated by a worm driven by a fluid motor. A second and corresponding swivel joint is also provided, being driven by fluid which is passed through the first-mentioned joint in order

that there will be no twisting of pipes or conduits. The second joint effects rotation of a portion of the monitor

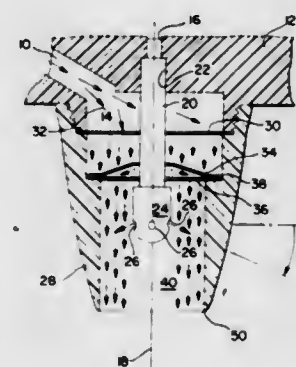


about a horizontal axis, whereas the first-mentioned joint effects rotation of the monitor about a vertical axis.

3,575,352 CARBONATED BEVERAGE MIXING AND DISPENSING NOZZLE ASSEMBLY

Roy L. Hall, Palos Verdes Peninsula, Calif. (8494 Cavalier Lane, Dublin, Calif., 94566), and Jacob Lee, 1624 12th Ave., Los Angeles, Calif.

Filed Dec. 23, 1968, Ser. No. 785,889
Int. Cl. B05b 7/04
U.S. Cl. 239-434.5 26 Claims



A nozzle for mixing and dispensing carbonated beverages, characterized by baffles, screens and orifices adapted to ensure thorough mixing of flavoring syrup and carbon dioxide charged water while allowing increased volume of mixture to be discharged with reduced foaming. The nozzle may also be used to dispense beer at a rapid rate of flow with a minimum of foaming.

3,575,353 MACHINE FOR APPLYING COATING MATERIAL TO PIPE

Robert E. Sullivan, Houston, Tex., assignor to International Pipe Coatings, Inc.

Filed Mar. 26, 1969, Ser. No. 810,552
Int. Cl. B05b 7/26
U.S. Cl. 239-314 9 Claims

A machine for coating pipe, making use of a dry mixture of coating materials, such as hydraulic cement, sand or gravel, and weight imparting material such as barite, iron oxide, or the like. The machine has a rotary impeller for projecting the dry mix from a supply source of the same toward the pipe to be coated, and includes moistening means, such as a water spray, through which the dry mixture passes after leaving the impeller to form a wet mixture which is impelled against the pipe.

Means is provided for feeding the dry mix to the impeller in a substantially constant, regulated stream and for controlling the amount of water added whereby the consistency

of the coating can be regulated. Mechanism is provided for causing the dry mix and water to be supplied simultaneously,

a conical end, the thread passing under a slide bar in a groove of the slide bar and then over the helically wound drum and about the bobbin. As the helical groove rotates,

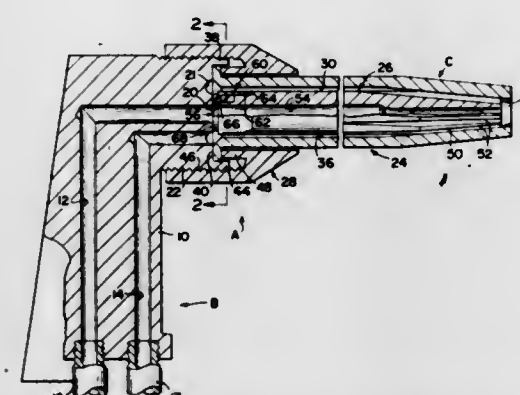


automatically upon operation of the machine, and for independently regulating the flow of dry mix as well as the flow of water while the machine is in operation.

3,575,354 CUTTING TORCH TIP ASSEMBLY

Frank Hach, Jr., Euclid, Ohio, assignor to The Harris Calorific Company, Cleveland, Ohio
Continuation-in-part of application Ser. No. 785,146, Dec. 19, 1968, now abandoned. This application Nov. 12, 1969, Ser. No. 875,943

Int. Cl. B05b 7/06
U.S. Cl. 239-422 18 Claims



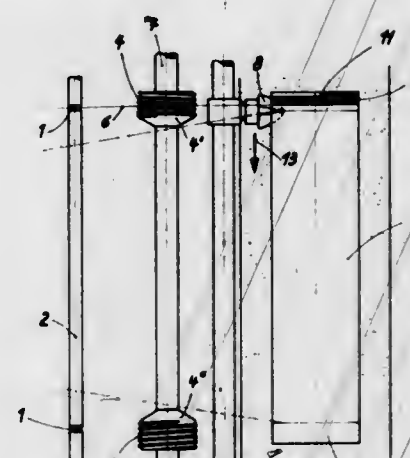
A cutting torch tip assembly including an elongated shell member having an internal axial passageway extending longitudinally therethrough. The passageway is of uniformly decreasing diameter adjacent its outlet end, and a circumferentially extending sealing surface defines the inlet end. Positioned within the passageway is an elongated, generally cylindrical, tip insert member having an inlet end and an outlet end. The outlet end of the insert is uniformly tapered and engages the correspondingly tapered outlet end of the passageway. The remaining portion of the insert is of a diameter substantially less than the diameter of the passageway. The inlet end of the insert terminates inwardly of the sealing surface of the shell and has an axially extending, circumferentially formed recess. A circumferential flange surrounds the recess and extends generally toward the inlet end of the shell. An annular, resilient seal member is positioned in the recess and has a free end portion extending outwardly of the recess and beyond the sealing surface of the shell.

3,575,355 DEVICE FOR AUTOMATICALLY WINDING UP THE INITIAL RESERVE YARN QUANTITY ON THE END OF A SMALL TUBULAR ELEMENT OF A BOBBIN IN THE TEXTILE INDUSTRY

Michele Ratti, Luino, Italy
Filed July 26, 1968, Ser. No. 747,961
Claims priority, application Italy, Aug. 26, 1967, 19823A/67

Int. Cl. B65h 54/34
U.S. Cl. 242-18 3 Claims

Apparatus for forming a single helically wound layer of reserve yarn at one end of the multilayer yarn wound on a bobbin, comprising a rotatably helically grooved drum having

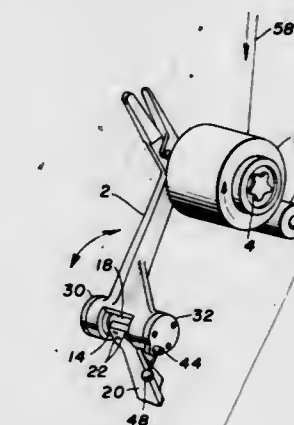


the initial yarn is laid down on the bobbin, and when the yarn reaches the end of the helical groove and is cammed by the conical portion of the roller, the yarn is forced out of the groove in the slide bar and also descends into the usual traversing thread guide.

3,575,356 TEXTILE SWING ARM CLUTCH DEVICE

William E. Campbell, Jr., Pensacola, Fla., assignor to Monsanto Company, St. Louis, Mo.

Filed Nov. 26, 1968, Ser. No. 778,949
Int. Cl. B65h 54/42, 54/52; F16d 67/00
U.S. Cl. 242-18 6 Claims



A clutch device including a unidirectional rotary sprag clutch member and controllable linkage between a rotary member and the sprag clutch member to provide free rotation of the rotary member in reverse directions or restrained rotation in the one direction of rotation of the sprag clutch member only. The clutch device is particularly designed to interrupt and dampen back and forth oscillation or bouncing of a bobbin relative to a peripherally engaged drive roll in a yarn winding and packaging operation.

3,575,357 DEVICE FOR WINDING TEXTILE THREADS

Heinrich Enneking, Karlsruhe-Waldstadt, Germany, assignor to Industrie-Werke Karlsruhe Aktiengesellschaft, Karlsruhe, Germany

Filed Jan. 31, 1969, Ser. No. 795,525
Claims priority, application Germany, Feb. 22, 1968, P 17 10 082.2
Int. Cl. B65h 54/42 7 Claims

U.S. Cl. 242-18
A device for winding textile threads in which the clamping spindle, upon which a bobbin cylinder is mounted, extends

sociated with at least two mechanical jacks and two intermediate arm members. Guiding members are pivotally attached each at one of its ends to an intermediate arm member and pivotally attached at its opposite end to meshing quadrant gears. The mechanical jacks and intermediate arm members are pivotally attached at one end to the aircraft structure.

ERRATUM

For Class 248—2 see:
Patent No. 3,575,364

3,575,366

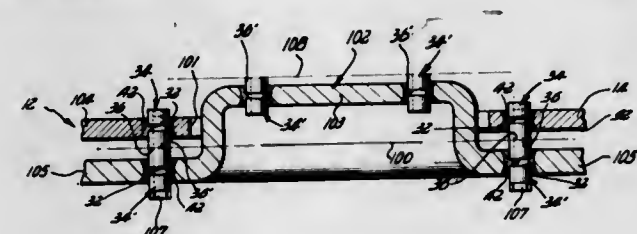
PRECISION PRODUCTION POTTING

James E. Blum, Pasadena, Calif., and Robert P. Johnson, Pontiac, Mich., assignors to Bell & Howell Company, Chicago, Ill.

Filed Nov. 6, 1967, Ser. No. 680,830
Int. Cl. G01d 15/28

U.S. Cl. 248—19

18 Claims



A production process for equipping a rough casting with a plurality of highly accurate surfaces at precisely predetermined locations on the casting without machining the casting. The casting includes a plurality of laterally spaced holes and is placed on a tool which supports a plurality of mounting bosses in the holes of the casting. The tool locates the bosses generally coaxial with the holes so that annular spaces are provided between the exterior of the bosses and the walls of the holes, which spaces are then filled with a bonding agent to secure the bosses to the casting. The tool positions selected faces of the bosses in desired relation to each other, preferably parallel to a reference surface defined by the tool. The tool seals an end of each annular space to prevent the bonding agent from flowing from the space as the agent cures.

3,575,367

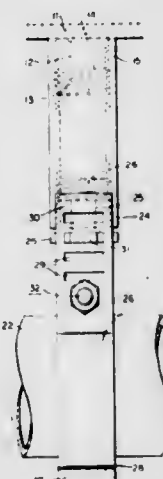
STANDOFF HANGER ASSEMBLY

Robert Louis Welsh, and William Russell Bodine, Cherry Hill, N.J., assignors to Omark Industries, Inc., Portland, Oreg.

Filed Nov. 1, 1968, Ser. No. 772,519
Int. Cl. F16l 3/10

U.S. Cl. 248—59

7 Claims



A tubular standoff hanger assembly which may be installed by means of the stud welding technique. A large cross section standoff member, which provides inherent rigidity due to its large diameter, is secured to a supporting surface by means of a stud which is welded to the supporting member wherein the stud includes a flange on one end thereof complementary with the inside configuration of the tubular standoff. Mating

threads and wedging means are provided to lock the flange of the stud with the standoff to maintain the standoff in engagement with the supporting surface. An adjustable hanger bracket for pipe or the like is provided on the opposite end of the standoff and includes a resilient rubber block and flexible banding in one embodiment and a stirrup-and-yoke combination in another embodiment.

3,575,368

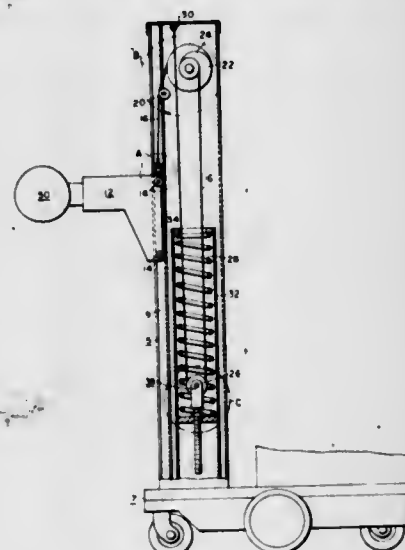
VERTICALLY ADJUSTABLE COUNTERBALANCING X-RAY TUBE HEAD SUSPENSION SUPPORT APPARATUS

Eugene P. Thomas, Baltimore, Md.; William E. M. Jones, and Bernard Miller, Pittsburgh, Pa., assignors to Westinghouse Electric Corporation, Pittsburgh, Pa.

Filed Jan. 27, 1969, Ser. No. 794,204
Int. Cl. A47g 29/00; F16m 11/06

U.S. Cl. 248—123

1 Claim



Described is a vertically adjustable counterbalancing suspension support apparatus embodied in a floor mounted mobile X-ray tube column. The exemplified load, an X-ray tube head, is mounted on a vertical carriage movable along a mobile-based column containing an elongated circumferentially-encased helical compression spring extending vertically therein for counterbalancing the tube head and carriage. A dual suspension cable arrangement transmits the carriage load to the lower and live end of the compression spring via respective spring-pickup-compensating fuses at the top of the column and a pair of spring-travel-reducing pulley arrangements at such live end. A combined tension-equalizing-and-safety-lock member connects the support cables to the loaded carriage.

3,575,369

SUPPORT FOR DEVICES SUCH AS CAMERAS, LAMPS, AND THE LIKE

Herbert William Tetlow, 120 E. 90th St., New York, N.Y. 10028
Filed Oct. 28, 1968, Ser. No. 770,986
Int. Cl. F16m 13/04

U.S. Cl. 248—158

9 Claims



A support which is adapted to carry a device, such as a lamp, camera, or the like, which is oriented in a given

direction during use thereof. The support includes an elongated pole having a top end which carries the device as the camera, lamp, or the like. At its bottom end the pole is connected with a stirrup which is adapted to engage the floor, ground, or the like and which receives the foot of the operator, so that in this way the support structure can be steadied.

3,575,370

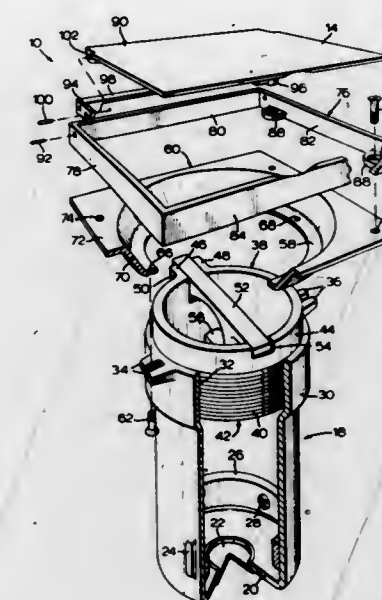
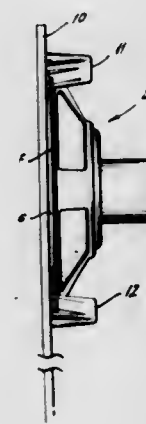
SNAP-IN MOUNTING FOR LOUDSPEAKERS AND THE LIKE

William J. Morris, Woodbury, and Robert C. Simmons, Pennsauken, N.J., assignors to Philco-Ford Corporation, Philadelphia, Pa.

Filed Aug. 29, 1969, Ser. No. 854,056
Int. Cl. F16b 19/00

U.S. Cl. 248—201

2 Claims



The anchor assembly has a hinged hook for securing an anchor stay.

3,575,373

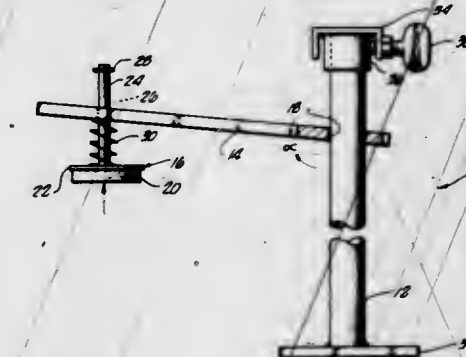
HOLDDOWN DEVICE

Richard N. Reinhardt, 621 W. Yale St., Ontario, Calif., and Frank L. Ellings, 2074 White Bluff, San Dimas, Calif.

Filed Feb. 7, 1969, Ser. No. 797,653
Int. Cl. B65j 1/22

U.S. Cl. 248—361

4 Claims



A holddown device has an arm which is capable of being canted on a shaft to effect a friction lock between the two. The relationship between the shaft diameter and the diameter of a hole in the arm which receives the shaft is such that approximately a 3° to 5° angle is effected between the arm and the shaft when an article is being held by the device. A pad carried by the arm through a spring-biased pin engages an article being held. The compression spring urges the arm into its angular locking engagement with the shaft.

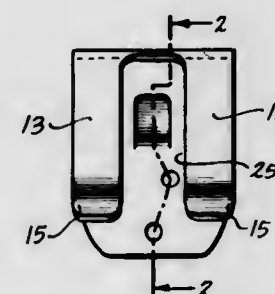
3,575,371

ROPE MOUNTING BRACKET

Paul A. Carlstedt, 9055 Phinney Ave. North, Seattle, Wash.
Filed Feb. 6, 1969, Ser. No. 797,091
Int. Cl. A44b 21/00

U.S. Cl. 248—215

2 Claims



A rope-mounting bracket having a body portion that is formed of a generally flat face having a tang and a pair of apertures therein for adjustably securing a line. A pair of resilient fingers are integrally connected to the body portion to form a gap therewith and are operable to releasably secure the body portion to the cleat, rail, coaming or the like, of a boat.

3,575,372

FLOOR SOCKET

John Ernest Emberson, Unionville, Ontario, Canada, assignor to Madsen Manufacturing Limited

Filed Nov. 29, 1968, Ser. No. 779,852
Int. Cl. B61d 45/00; E02d 5/80

U.S. Cl. 248—361

2 Claims

An anchor socket for a gymnasium floor is formed of a tu-

3,575,374

DEVICE FOR HOLDING BUILT-IN FITTINGS

Zoltan Csenyi, Bahnhofstrasse 61, 8902 Urdorf, Zurich, Switzerland

Filed Nov. 25, 1968, Ser. No. 778,571

Claims priority, application Switzerland, Nov. 28, 1967, 16,809/67

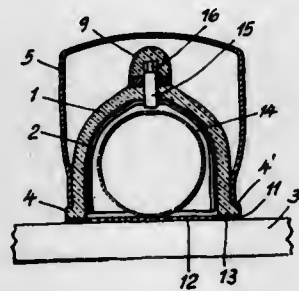
Int. Cl. F16b 47/00

U.S. Cl. 248—363

6 Claims

A substantially rigid bell is held by suction against a concrete form wall to position a fitting in the form of a hous-

ing snugly and sealingly fitted over the bell in place while the concrete is poured. Thereafter, the form is removed and the



downstream port, but in which undesirable wiping of the seal by the poppet as it seats and unseats is minimized. Valves of this sort are particularly useful in rocket propellant supply systems in order to initially isolate propellants from the valve interior.

3,575,377
CLOSURE SEAL FOR GATE VALVE AND METHOD
Sydney E. Carlton, Gladstone, and Max L. Moody, Portland, Oreg., assignors to Willamette Iron and Steel Company, a Division of Guy F. Atkinson Company, Portland, Oreg.
Filed Feb. 20, 1969, Ser. No. 801,063
Int. Cl. F16k 3/18

U.S. Cl. 251-176

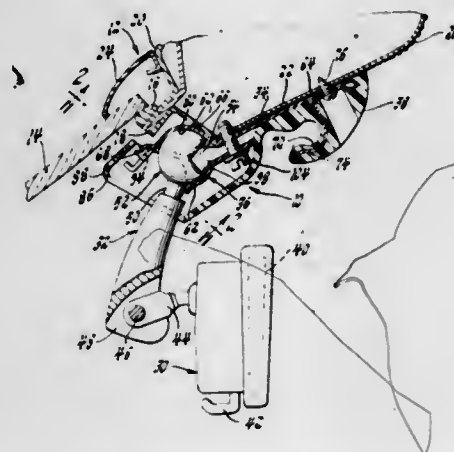
9 Claims

bell withdrawn from the fitting which remains in place in the hardened concrete body.

3,575,375
REAR VIEW MIRROR ASSEMBLY
Ervin H. Strem, Jr., Mount Clemens, Mich., assignor to General Motors Corporation, Detroit, Mich.
Filed Sept. 8, 1969, Ser. No. 855,929
Int. Cl. B60r 1/04

U.S. Cl. 248-481

4 Claims

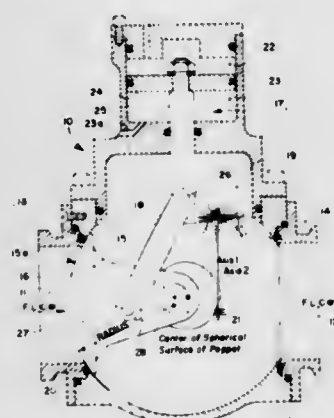


A breakaway rear view mirror assembly wherein a support arm having a mirror adjustably mounted at a lower end has a spherical ball formed at the other end which includes a transverse V-shaped notch. The ball is normally frictionally held between a clamping plate and a mounting bracket attached interior the vehicle adjacent the windshield. After a predetermined rotation of the support arm, the clamping plate loses contact with the ball in the vicinity of the notch whereby the mirror separates from the mounting bracket.

3,575,376
DUAL POSITION VALVE
Carl D. Arvidson, Jr., Slmsbury, Conn., assignor to Thiokol Chemical Corporation, Bristol, Pa.
Filed Oct. 30, 1968, Ser. No. 771,958
Int. Cl. F16k 5/20, 25/00

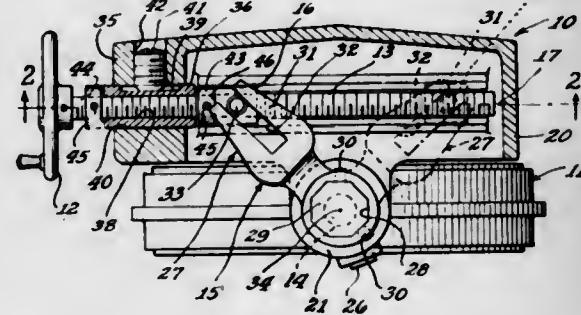
U.S. Cl. 251-31

8 Claims



A valve is presented in which the single poppet initially seats on an upstream port and thereafter seats on a

downstream port which is adjustably positioned and provided with as



3,575,378
VALVE OPERATOR MECHANISM
Donald G. Fawkes, Aurora, Ill., assignor to Henry Pratt Company
Filed June 18, 1969, Ser. No. 834,402
Int. Cl. F16k 31/50

U.S. Cl. 251-229

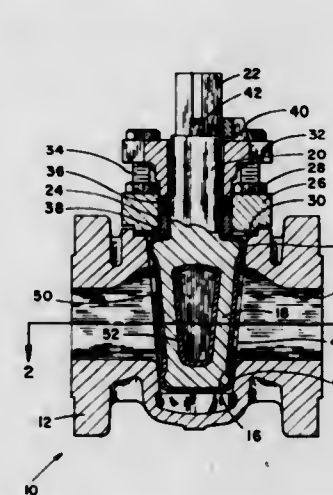
17 Claims

sociated stop means to coordinate the position of the drive shaft and valve shaft in at least one extreme position. The drive shaft carrying means may comprise a sleeve having an associated stop element at one end thereof for engagement by a stop element associated with the coupling means to provide the desired accurate positioning in the extreme position of the shafts. The sleeve may have a rough outer surface to permit infinite adjustability thereof in a fixed support.

3,575,379
ENCAPSULATED PLUG VALVE
Pieter F. Hoos, Greensburg, Pa., assignor to Walworth Company, New York, N.Y.
Filed Aug. 1, 1969, Ser. No. 846,860
Int. Cl. F16k 5/02

U.S. Cl. 251-314

6 Claims

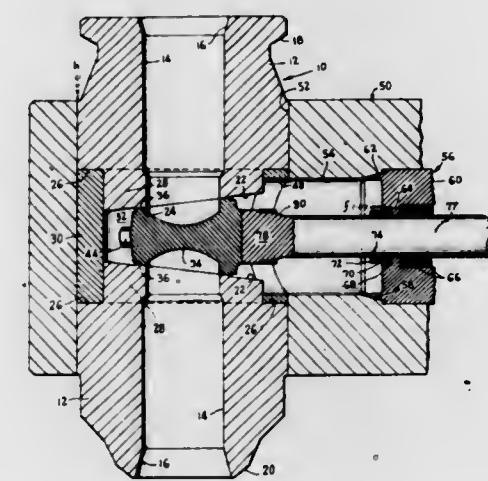


A valve with a plug with an outer surface of a resilient, low-friction material. The plug has circumferential bearing and sealing surfaces around the top and bottom thereof on the nominal plug taper, and on each side intermediate its flow ports, a pair of spaced, narrow sealing strips also on the nominal conical surface of the plug extending between, and merging with, the circumferential bearing surfaces. When the plug is in closed position, the sealing strips and surfaces seal around the top and bottom of the plug and body, and on opposite sides of the body port.

3,575,380
GATE VALVE AND METHOD OF CONSTRUCTING SAME
Chester A. Siver, 10 Fair Hill Lane, Suffield, Conn. 06078
Filed Oct. 6, 1969, Ser. No. 863,927
Int. Cl. F16k 3/12

U.S. Cl. 251-327

5 Claims



A gate valve employs a generally cylindrical sleeve on the body thereof encircling the chamber in which the gate member reciprocates to open and close the flow passage through the valve. The gate member is slidable between the open and closed positions thereof along a pair of guide rods

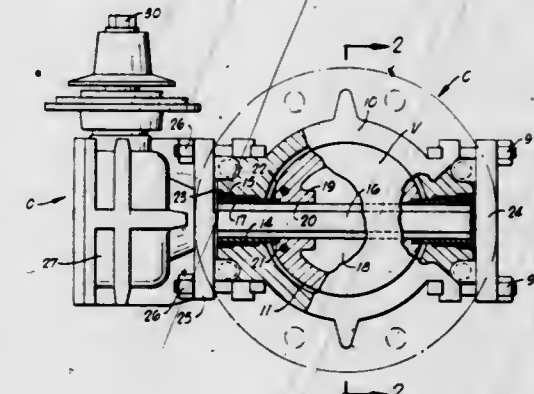
885 O.G.—20

which are secantally mounted in the sleeve and which extend within the chamber. In the method of assembly, two halves of the body are forced against a dummy gate member and the seals therebetween are tested for leakage, preferably both before and after bonding steps are effected.

3,575,381
VALVE SEAT CONSTRUCTION
William C. Gilmore, Bradford, Pa., assignor to Dresser Industries, Inc., Dallas, Tex.
Filed Aug. 23, 1968, Ser. No. 754,888
Int. Cl. F16k 51/00, 1/226

U.S. Cl. 251-359

7 Claims

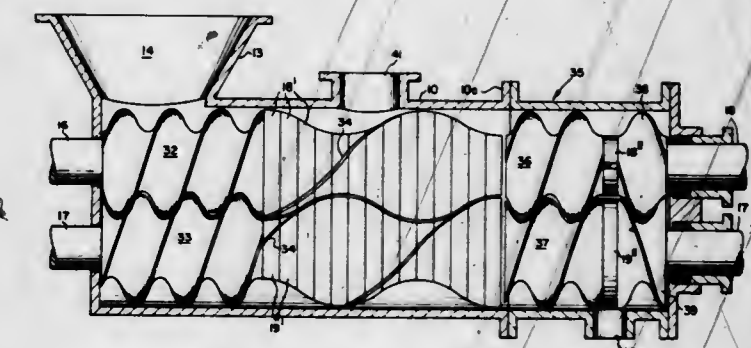


A butterfly valve in which the seat is formed of a stainless steel ring fused to the valve body by casting the body about the prepositioned ring prior to the finished machining thereof.

3,575,382
MULTIPURPOSE CONTINUOUS MIXING AND/OR KNEADING APPARATUS
Bernard A. Loomans, Saginaw, Mich., assignor to Baker Perkins Inc., Saginaw, Mich.
Original application Jan. 12, 1967, Ser. No. 608,770, now Patent No. 3,423,074, dated Jan. 21, 1969. Divided and this application Nov. 7, 1968, Ser. No. 774,107
Int. Cl. B01f 7/04, 7/08

U.S. Cl. 259-6

3 Claims



This invention relates to mixing and/or kneading machines of a type wherein two or more shafts are journaled in a mixer housing and pairs of radially engaging paddle-shaped sections are provided on the shafts, between a charge opening and a discharge opening, which are driven at the same speed and in the same direction of rotation to homogeneously mix and/or knead a variety of materials, which may be in plastic, liquid, granular or powder form, and are moved continuously in the mixer from the charge opening to the discharge opening.

3,575,383

ULTRASONIC CLEANING SYSTEM, APPARATUS AND METHOD THEREFOR

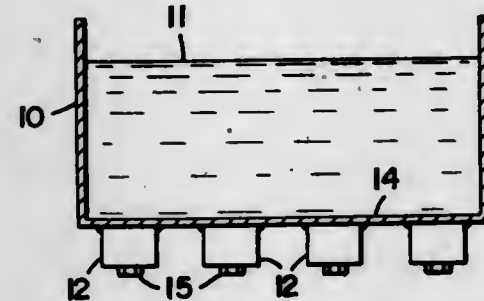
John A. Coleman, 1065 Bush St., San Francisco, Calif. 94109

Filed Jan. 13, 1969, Ser. No. 790,764

Int. Cl. B01f 11/02; B06b 3/00; B08b 3/10

U.S. Cl. 259-72

9 Claims



An ultrasonic cleaning system in which at least one transducer unit includes a base bonded to the bottom of a cleaning tank each unit including a stud on which are placed two annular transducer elements, a pressure plate, and a nut. The stud is firmly fixed by tapered threads to the base so that removal of the compression nut does not disturb the stud but allows replacement of defective transducer elements. Pairs of the transducer units are associated with a single plug-in oscillator unit which supplied high frequency vibratory energy to it.

3,575,384

ASPHALT WEIGHING AND PRESSURE INJECTION MIXING SYSTEM

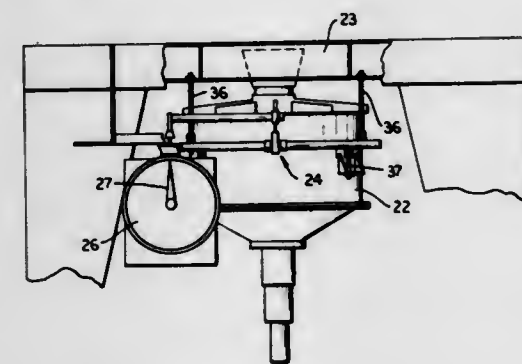
Richard H. Sachs, New Whiteland, Ind., assignor to American Hoist & Derrick Co., St. Paul, Minn.

Filed Nov. 25, 1968, Ser. No. 778,575

Int. Cl. B28c 7/04

U.S. Cl. 259-154

5 Claims



In an asphalt batch mix plant, asphalt is pressure injected from a plurality of nozzles along the centerline of the batch mixer. The nozzles are spaced along a spray bar mounted to an asphalt weigh bucket mounted on scales and equipped with power-operated inlet and outlet valves to admit and contain asphalt for weighing. An air supply is connected to the weigh bucket to establish a pressure therein for discharge of the weighed asphalt through the spray bar nozzles into the mixer.

3,575,385

THROTTLE LINKAGE MECHANISM FOR A MULTI-STAGE CARBURETOR

Jesse L. Szwargulski, and Robert J. Smith, Florissant, Mo., assignors to ACF Industries, Incorporated, New York, N.Y.

Filed Apr. 10, 1969, Ser. No. 815,015

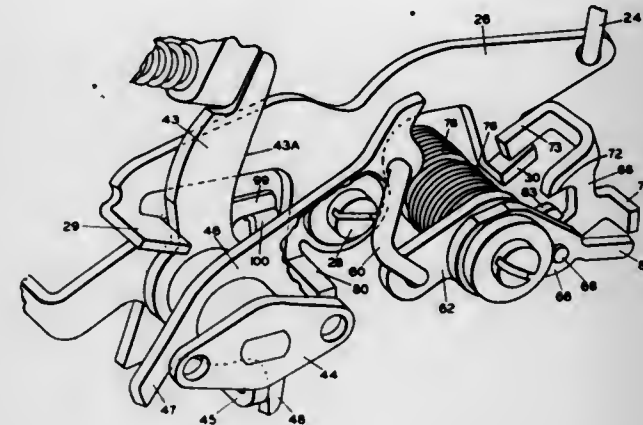
Int. Cl. F02m 11/02

U.S. Cl. 261-23

4 Claims

Lever and linkage mechanism are disclosed for the sequential operation of the throttle of a two stage carburetor. When

the engine is cold and the choke is in operation, only the primary throttle is operative. When the choke is fully opened, a latch or dog on the secondary side is released by the choke



3,575,386

DEVICE FOR REDUCING INTERNAL COMBUSTION ENGINE HYDROCARBON EMISSIONS

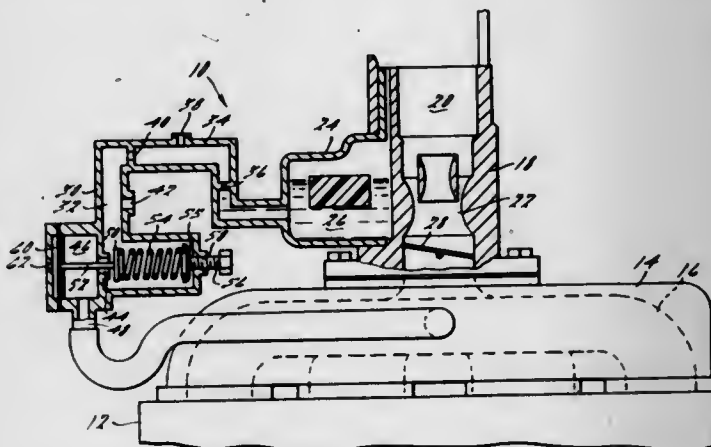
William David Boyd, Buckhurst Hill, England, assignor to Ford Motor Company, Dearborn, Mich.

Filed Apr. 25, 1969, Ser. No. 819,329

Int. Cl. F02m 7/12

U.S. Cl. 261-23

5 Claims



A device for reducing the emission of unburned hydrocarbons from an internal combustion engine during periods of engine speed deceleration when combustion chamber and intake manifold pressures drop to such low values as to inhibit complete combustion. The low pressure or vacuum that occurs is relieved by directing an air-fuel mixture into the intake manifold whenever manifold pressure falls to a predetermined value. This mixture is formed in a secondary charge forming device that operates independently from the conventional engine carburetor.

3,575,387

AIR CONTROL DAMPER FOR EVAPORATIVE HEAT EXCHANGERS

Wilson E. Bradley, Jr., Ellicott City, and Edward N. Schinner, Silver Spring, Md., assignors to Baltimore Aircoil Company, Inc., Baltimore, Md.

Filed Dec. 5, 1968, Ser. No. 781,348

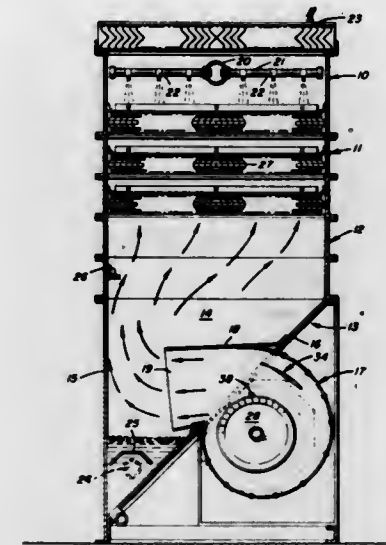
Int. Cl. B01d 47/00

U.S. Cl. 261-30

9 Claims

This application discloses a blow-through air fan for evaporative heat exchangers having a diffusion duct containing a moveable damper and a cooperating fixed baffle so that

in the full flow position little resistance to air is offered and turn coupled to the choke valve so that the valve will be in the maximum choke position the air pressure across the moved in opposite directions in accordance with temperature



mouth of the air discharge duct is sufficiently uniform to prevent aspiration of water.

3,575,388

SEALED CARBURETOR

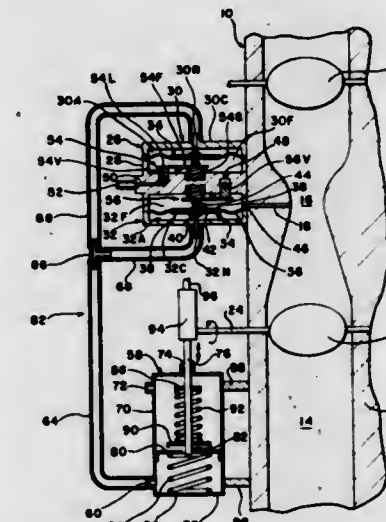
John Scarr, Jr., Verona, Pa., assignor to Gulf Research & Development Company, Pittsburgh, Pa.

Filed Aug. 16, 1968, Ser. No. 753,258

Int. Cl. F02m 7/06

U.S. Cl. 261-34A

3 Claims



The invention comprises a carburetor having a controller in the fuel line feeding the main carburetor venturi to seal the fuel system against evaporative losses. The controller comprises two diaphragm operated valves arranged in cascade series. A throttle-actuated pump is also provided to operate the diaphragms to open the valves simultaneously and quickly for fast acceleration.

3,575,389

APPARATUS FOR AUTOMATIC OPERATION OF A CHOKE VALVE IN A CARBURETOR

Isamu Goto, Tokorozawa-shi; Minoru Inada, Kitaadachi-gun; Minoru Atsumi; Toyoshige Miyazaki, Tokyo, and Mitsuki Ninomiya, Yokohama-shi, Japan, assignors to Honda Giken Kogyo Kabushiki Kaisha, Tokyo and Kabushiki Kaisha Keihin Seisakusho, Kanagawa-ken, Japan

Filed Mar. 5, 1969, Ser. No. 804,463

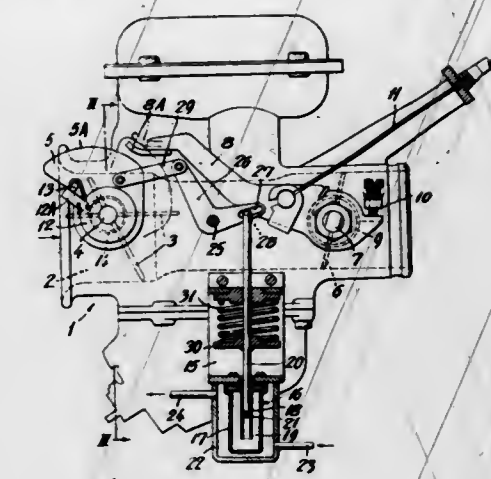
Claims priority, application Japan, Mar. 5, 1968, 43/13824

Int. Cl. F02m 3/06

U.S. Cl. 261-39

11 Claims

A choke valve in a carburetor is controlled by a temperature sensitive element which is directly coupled with a cam in



variation of the engine irrespective of the contact of an operating member of a throttle valve with the cam.

3,575,390

CARBURETION

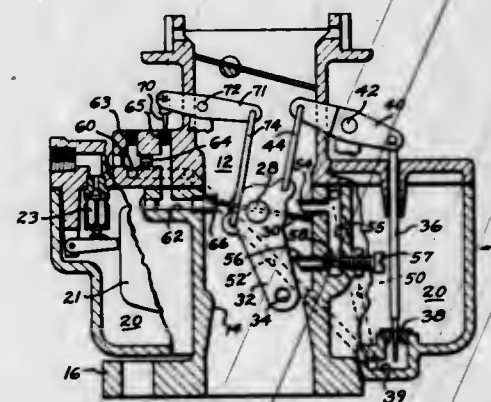
James T. Bickhaus, St. Louis, and Harold A. Carlson, Brentwood, Mo., assignors to ACF Industries, Incorporated, New York, N.Y.

Filed May 24, 1968, Ser. No. 731,989

Int. Cl. F02m 7/04

U.S. Cl. 261-41

7 Claims



A carburetor having a constant level fuel supply and a mixing conduit has a throttle valve mounted above the fuel level. Two fuel supply circuits are provided. A first fuel circuit discharges through a nozzle located adjacent the high edge of the throttle valve and a second fuel circuit discharges fuel at a point located above the low edge of the throttle valve. The high and low edges referring to the position of the throttle when in curb idle position.

3,575,391

CARBURETOR HAVING A ROTARY DAMPER FOR THE AIR VALVE

Paul E. Braun, Birmingham; Thomas A. Nelson, Allen Park, and Charles K. Weslock, Harper Woods, Mich., assignors to Ford Motor Company, Dearborn, Mich.

Continuation of application Ser. No. 611,906, Jan. 26, 1967, now abandoned. This application Mar. 6, 1969, Ser. No. 806,036

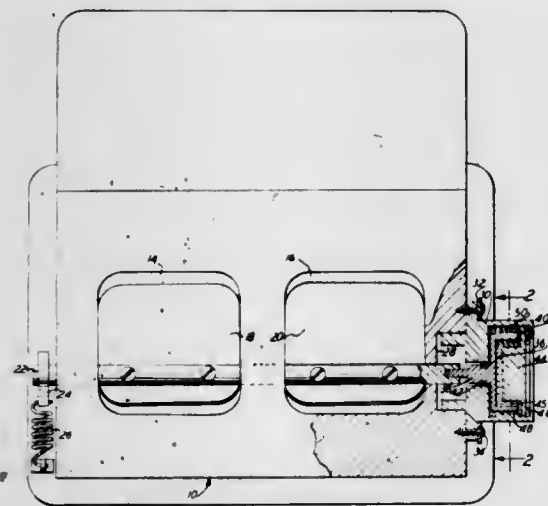
Int. Cl. F02m 19/12, 7/24

U.S. Cl. 261-64

2 Claims

A rotary damper for the air valve of an air valve carburetor. The damper comprises a rotor attached to one end of the air valve mounting shaft and rotating in a viscous fluid medium that dampens air valve oscillation without affecting normal air valve operation. Lands on the rotor and the rotor housing increase the amount of damping at any given air valve opening. Each of said lands on the rotor and housing

has a significant surface area. The air valve rotating the rotor from a position in which the lands are adjacent each other to a position in which the lands are removed from each other. The lands and the fluid medium providing an increased



amount of damping when the lands are adjacent each other. The housing is only partially filled with the fluid medium and the land of the rotor is positioned out of the fluid and adjacent the land on the housing for an increased amount of damping.

3,575,392

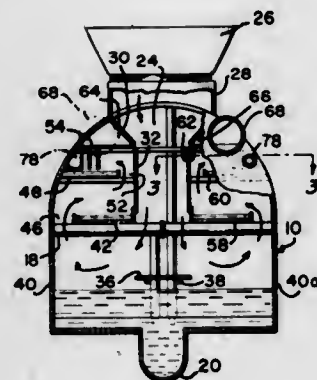
DIRECT CONTACT CONDENSER

Robert J. Stoker, Phillipsburg, N.J., and Leslie L. Forster, Easton, Pa., assignors to Ingersoll-Rand Company, New York, N.Y.

Filed Apr. 29, 1968, Ser. No. 725,055
Int. Cl. F28b 3/04

U.S. Cl. 261-113

4 Claims



A direct contact condenser wherein a plurality of vertically spaced, apertured elements are disposed on each of two opposing sides of the condenser inlet. The apertured elements of each plurality cooperate to provide a tortuous steam flow passage communicating with the condenser inlet, and are provided with a cooling liquid whereby the liquid is discharged in streams through the steam flow passages and forms the primary condensing medium of the condenser.

3,575,393

TRANSPORT MECHANISM AND FURNACE UTILIZED IN THE FABRICATION OF SEMICONDUCTOR DEVICES
Dale T. Kelley, Phoenix, Ariz., assignor to Motorola, Inc., Franklin Park, Ill.

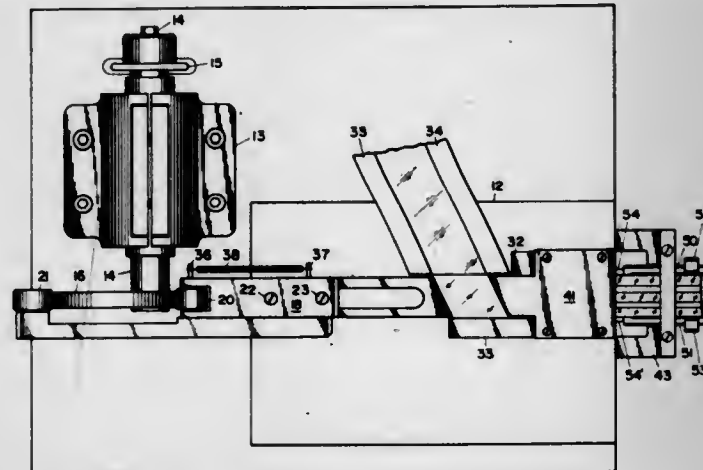
Filed Dec. 18, 1968, Ser. No. 784,869
Int. Cl. F27b 9/14

U.S. Cl. 263-6

11 Claims

A transport mechanism and furnace for transistor header assemblies is described wherein the headers are transported in a serial manner along a fixed surface. The surface can be formed as a portion of the heat sink of a furnace used to effect soldered connections in semiconductor assemblies. As a

result, the headers are heated by conduction. A pair of spaced parallel rods are slidably mounted proximate to the fixed surface and the headers are positioned therebetween. The spacing of these rods is less than the major dimension or length of the header. The application of force to the first header in the series urges the header into frictional engage-



ment with the rods and by simultaneously moving the rods forward all of the headers become frictionally engaged and move through the furnace with the rods. Consequently, the header assemblies are transported without requiring a moving belt and the soldering conditions in the furnace are improved.

3,575,394

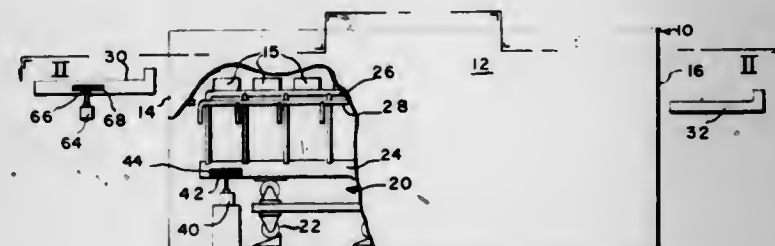
WALKING BEAM FURNACE CONTROL

Regis A. Gaj, Joseph J. Fabry, Scott Township, Allegheny County, and Francis B. Corey, Baldwin, Pa., assignors to Salen-Brosius, Inc.

Filed July 10, 1969, Ser. No. 840,653
Int. Cl. F27b 9/14

U.S. Cl. 263-6

4 Claims



A control system for a walking beam furnace including a charging mechanism, which system includes settable walking beam and charging control means, and comparator means for comparing the charge space available in the furnace with the size and spacing of the work pieces to be charged and for regulating the distance of movement of the charging mechanism in accordance with the available charge space.

3,575,395

BILLET HEATING FURNACE AND CONVEYOR THEREFOR

Charles B. Gentry, Grand Rapids, Mich., assignor to Granco Equipment, Inc., Grand Rapids, Mich.

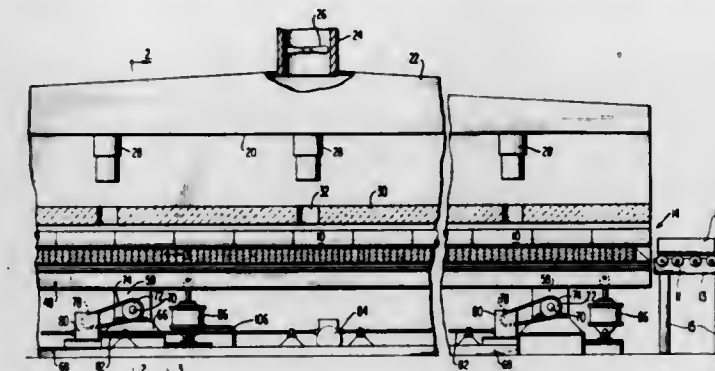
Filed Nov. 14, 1969, Ser. No. 876,667
Int. Cl. B65g 25/04; F27b 9/14

U.S. Cl. 263-6

13 Claims

This disclosure relates to a walking beam furnace for heating billets and the like in which the billets are conveyed by a central beam through a furnace chamber. Power means are provided to impart circular motion in a vertical plane to the

central beam and an independent pneumatic force biases the beam upwardly to assist the power means in the movement of



the beam, to minimize power requirements and to minimize wear on the power equipment.

3,575,396

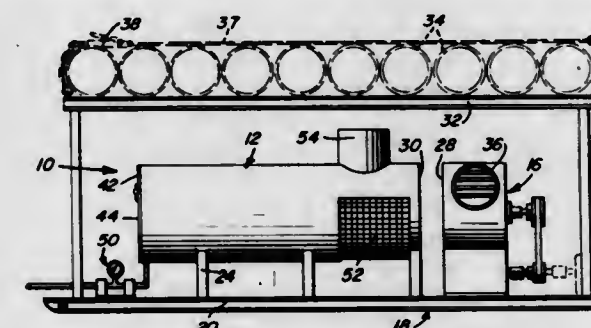
AIR HEATER WITH SAFETY EXHAUST SYSTEM

Ernest R. Muckelrath, Tioga, N. Dak., assignor to Air Heaters, Inc.

Filed Apr. 17, 1969, Ser. No. 822,849
Int. Cl. F231 9/00

U.S. Cl. 263-19

5 Claims



An air heater for outdoor work areas including an elongated linear burner containing fire tube having a heat discharging blower mounted in alignment with and in spaced relation from the outlet end of the tube. The portion of the tube adjacent the outlet end includes upper and lower combination air inlets and gas exhausts. The unit is skid mounted for portability.

3,575,397

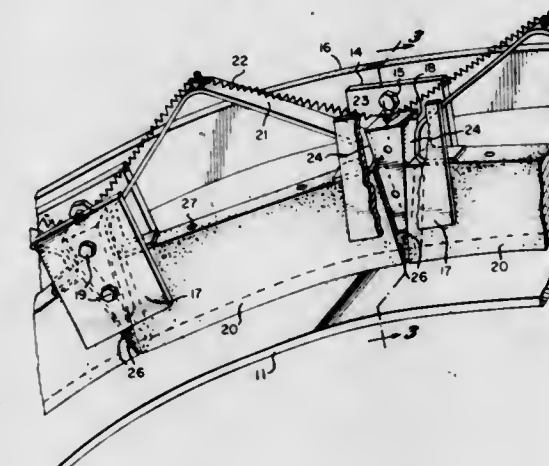
KILN SEAL

Donald M. McDowell, Allentown, and Frank W. Horner, Jr., Bethlehem, Pa., assignors to Fuller Company

Filed Jan. 16, 1970, Ser. No. 3,280
Int. Cl. F27b 7/20; F26b 25/00

U.S. Cl. 263-32

8 Claims



A sealing assembly for sealing the opening between the communicating members of a rotary furnace system, more

particularly for sealing between a rotating member such as a kiln or dryer shell and a stationary member such as a fire hood or feed end housing, comprising a plurality of abratable sealing blocks in sliding engagement with the rotating member and guide means positioned between the sealing blocks and in slidable engagement therewith, the sidewalls of the individual sealing blocks being parallel in relation to each other and the sidewalls of the guide means being in a parallel relation with the opposed sidewalls of the sealing blocks and converging in a downward direction and terminating at a point above the surface of the rotating member.

3,575,398

APPARATUS FOR MINIMIZING ATMOSPHERE UPSET IN A FURNACE FOR HEAT TREATING ARTICLES

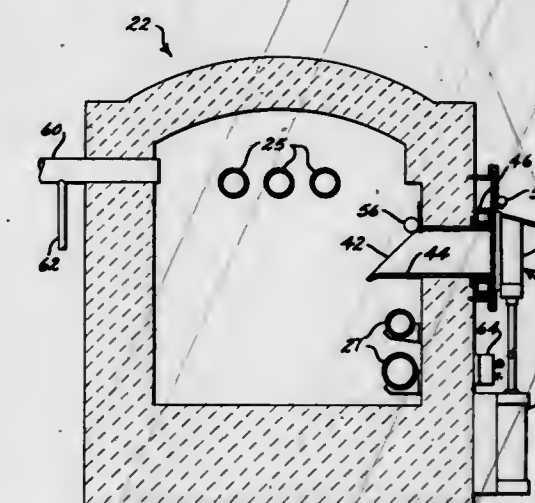
Joseph A. Lincoln, and Orville E. Cullen, Toledo, Ohio, assignors to Midland-Ross Corporation, Toledo, Ohio

Filed Nov. 13, 1968, Ser. No. 775,459

Int. Cl. F27b 7/00

U.S. Cl. 263-36

12 Claims



This invention relates to the prevention of atmosphere upset and to the rapid recovery from such an upset which is caused by contaminating gases entering through the workpiece discharge opening of a controlled atmosphere furnace or hot chamber. The discharge opening is protected by a flame screen directed across its outer face and by a jet stream curtain of gases directed outwardly across the opening. Atmosphere is constantly supplied to the furnace and, additionally, a restoring gas is supplied intermittently to the furnace.

3,575,399

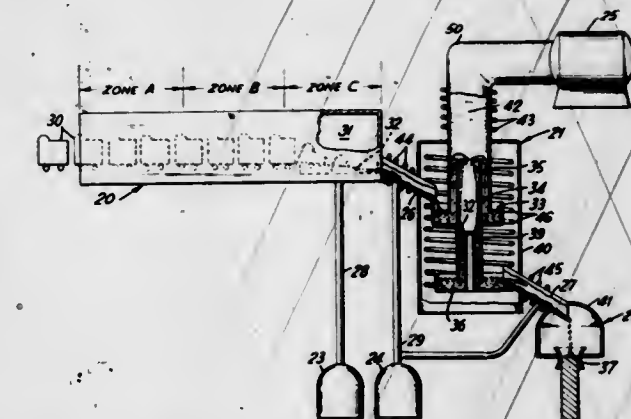
APPARATUS FOR PURIFICATION OF COPPER

Thomas Gordon Hart, San Francisco, Calif., assignor to Phelps Dodge Corporation, New York, N.Y. Division of Ser. No. 478,612, Aug. 10, 1965, abandoned.

Filed Oct. 20, 1969, Ser. No. 870,842
Int. Cl. C22b 15/14

U.S. Cl. 266-11

8 Claims



Copper is refined by melting the copper in a hydrogen atmosphere thereby dissolving into the copper substantial

amounts of oxygen impurities. The molten copper is then subjected to vacuum treatment to remove the excess hydrogen, thereby causing agitation of the molten copper to improve the removal of volatile impurities.

3,575,400

ROTARY LONGITUDINAL KILN APPARATUS

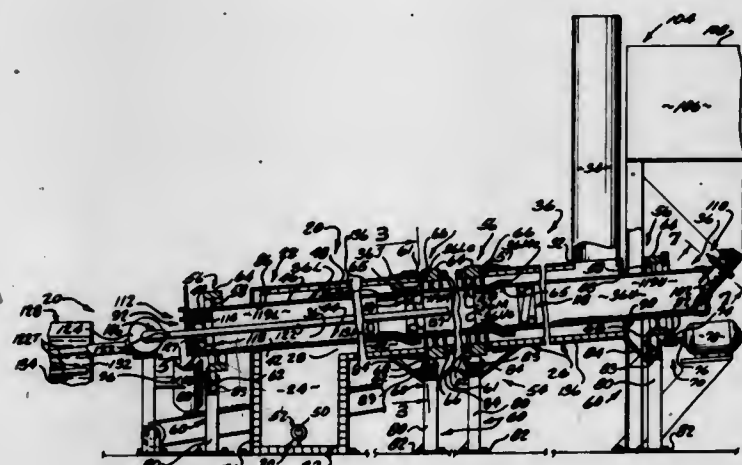
Jack G. Flaher, 11032 Magnolia Blvd., North Hollywood, Calif.

Continuation-in-part of application Ser. No. 465,474, June 21, 1965, now abandoned. This application June 20, 1968, Ser. No. 738,492

Int. Cl. C22b 5/16

U.S. Cl. 266—18

17 Claims



The specification discloses an improved mercury-extraction, ore-treatment, apparatus comprising an inclined longitudinal rotary kiln having a rotating longitudinal inner ore-flow tube means through which mercury ore is fed and passes spirally downwardly from the upper inlet end thereof to the lower discharge end thereof while being exteriorly subjected to hot flue gases in an outer insulated furnace extension tubular portion (nonrotating) surrounding said inner rotating ore-flow tube means and thus causing mercury in the mercury ore to be released in the form of vapor which is then extracted from within said ore-flow tube means by suction applied to longitudinal mercury vapor extraction tube means extending into said rotating ore-flow tube means from the lower end thereof and then passing through condenser means for condensing the extracted mercury vapor. The inner rotating ore-flow tube means is provided therealong with a plurality of mercury vapor and ore separating and isolating means which freely allow passage of the ore therethrough, but which virtually prevent the passage of vapor therethrough. One form of the ore-flow tube means includes novel expansion joint means compensating for thermal expansion and slight misalignment of ore-flow tube means sections along the length thereof and also provides thermal expansion and seal means between adjacent tubular furnace extensions portions and supporting wheel means passing therethrough and bearing the weight of the rotating ore-flow tube means at longitudinally spaced locations.

3,575,401

BLAST FURNACE BACKDRAFT VALVE

William H. Malone, Northfield, Ohio, assignor to Republic Steel Corporation, Cleveland, Ohio

Filed Oct. 3, 1968, Ser. No. 764,857

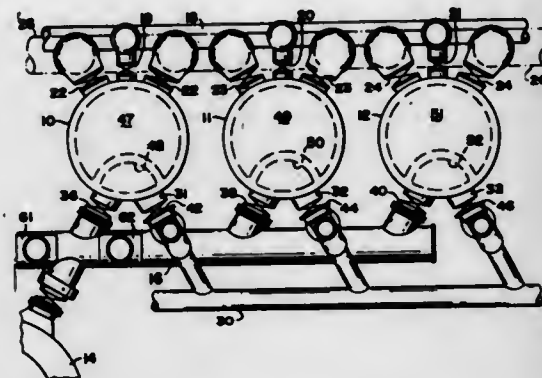
Int. Cl. F27d 7/00

U.S. Cl. 266—30

11 Claims

The disclosure pertains to blast furnace installations in which during periods when the furnace is shut down it is connected to a backdrafting stack which produces a reversal of flow of the gaseous products in the furnace which are vented through the stack. The stack is connected to the furnace's hot air blast system during backdrafting by means of a valve which includes a movable section and a fixed section which when coupled together condition the furnace for backdrafting. Upon resumption of the furnace operation the movable

valve section is withdrawn out of contact with the fixed section and the backdraft opening is closed by a valve element



thus disconnecting the stack from the hot air blast system during normal furnace operation.

3,575,402

METALLURGICAL VESSEL SUPPORTING DEVICE

Karl-Heinrich Mahringer, Duisburg-Hamborn, and Karl-Heinz Langlitz, Mulheim(Ruhr)Heissen, Germany assignors to Demag Aktiengesellschaft, Duisburg, Germany

Filed Dec. 3, 1968, Ser. No. 780,783

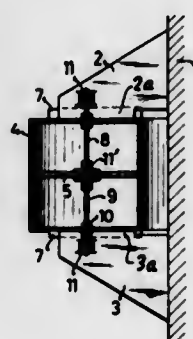
Claims priority, application Germany, Dec. 7, 1967,

P 15 83 245.8

Int. Cl. C21c 5/42

U.S. Cl. 266—35

8 Claims



A fastening device for a metallurgical vessel particularly for steel mill converters which are adapted to rest on a supporting ring surrounding the vessel includes a claw or bracket element which extends outwardly from the exterior wall of the vessel and engages and holds the supporting ring. The claws are secured between the vessel and the ring by a connecting expandable metal plate or metal strip. The metal plate has a broad side which extends substantially perpendicularly to a radius of a vessel. The claws extend outwardly from above and below the ring and engage in trackways defined between guides formed at spaced locations on the ring. The vessel may also be provided with a bracket or claw which extends radially outwardly from its exterior surface and provides an anchor for one end of a connecting plate which is arranged to extend preferably substantially tangential to the outer ring. The ring is supported from the other end of the connecting plate by a bracket member which extends upwardly from the ring.

3,575,403

RUBBER-CONTAINING SPRING MEANS

Denis M. Hamel, St. Mande, and Joachim Tank, Paris, France, assignors to Pneumatiques, Caoutchouc Manufacture Et Plastiques Kleber-Colombes, Place de Valmy, Colombes, France

Filed Jan. 3, 1969, Ser. No. 788,739

Claims priority, application France, Mar. 21, 1968, Mar. 28, 1968, 144,874; 146,051

Int. Cl. F16f 1/40

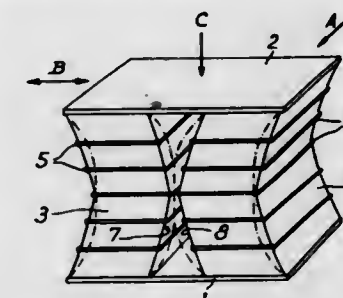
U.S. Cl. 267—63

15 Claims

This invention relates to compression springs of the type comprising layers of rubber adhered to metal end and inter-

mediate plates, and according to the invention, at least two spring block elements are spaced horizontally and positioned so that said elements tend to approach each other and to lean

being mounted on corresponding ends of a pair of parallel bars for pivoting and sliding motion relative to said bars.



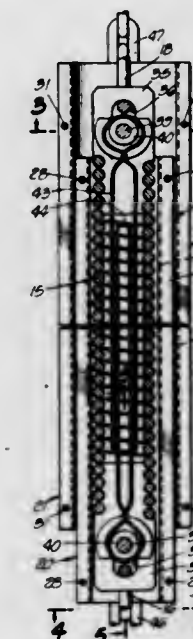
3,575,404
PROTECTIVE SHROUD ASSEMBLY FOR INSTALLATION ABOUT STRESSED COIL SPRINGS
Herman Otto Wesch, 2265 Brentford Road, San Marino, Calif. 91108

Filed Jan. 6, 1969, Ser. No. 789,211

Int. Cl. F16f 1/12

U.S. Cl. 267—74

5 Claims



A protective assembly for coil springs to protect life and property should the springs fail while stressed. The protective shroud is installable about the spring while under stress without need for unloading the spring or using any except simple tools.

3,575,405

PARALLEL BAR CLAMPING DEVICE

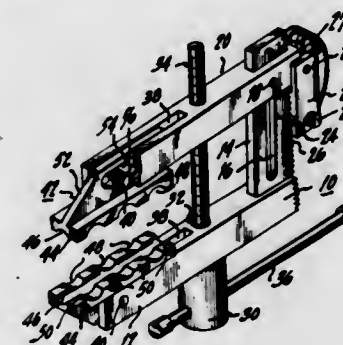
Emmit B. Harding, 41 West 112th St., New York, N.Y.

Filed Aug. 28, 1968, Ser. No. 755,855

Int. Cl. B25b 5/04, 5/16

U.S. Cl. 269—258

3 Claims



A clamping device includes a pair of jaw members, each

3,575,406

MACHINIST'S PARALLELS

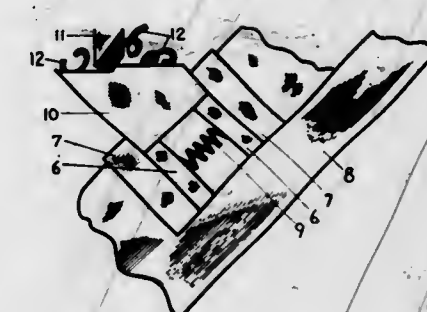
Gerard J. Violet, 1619 1/2 W. 13th St., Gardena, Calif. 90249

Filed July 2, 1968, Ser. No. 750,398

Int. Cl. B23q 3/10, 3/18

U.S. Cl. 269—296

5 Claims



In a machinist's parallel, one or more round pockets having preferably a flat bottom and locating a resilient means which is connected preferably to another parallel having same pocket, said parallels keep the set up with precision when used between jaws of a machinist vise or a fixture.

3,575,407

ANAESTHESIOLOGY DRAPING SCREEN STRUCTURE

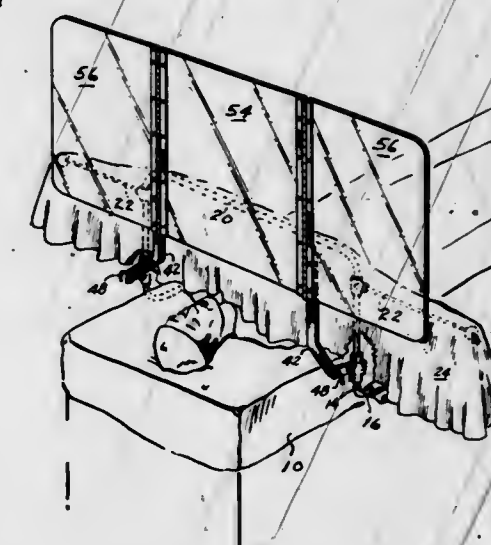
Simon A. A. Carson, 9222 S. E. 33rd, Mercer Island, Wash.

Filed Nov. 1, 1968, Ser. No. 772,735

Int. Cl. A61g 13/00

U.S. Cl. 269—322

15 Claims



This invention relates to an anaesthesiology draping screen structure and more particularly to a structure to support (1) a first anaesthesiology draping cloth screen disposed crosswise of a surgical table and aligned at a level just caudad to the head of a patient and (2) a second anaesthesiology sterile screen. The second screen is characterized by being formed of a rigid, transparent material, such as Plexiglass or methyl methacrylate and is adjustably and detachably supported by the surgical table through (1).

3,575,408

ROTARY COLLATOR

Willis S. Cole, 16904 13th Place West, Lynnwood, Wash.

Filed Aug. 6, 1968, Ser. No. 750,620

Int. Cl. B65h 39/02

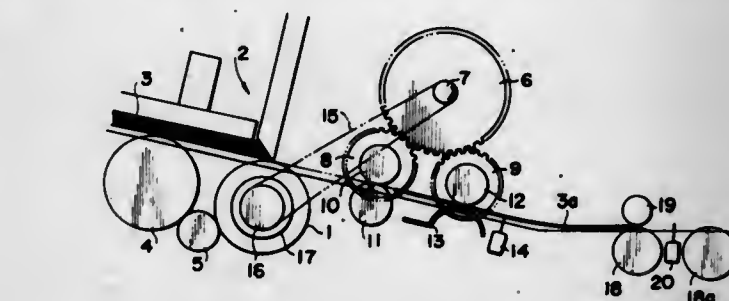
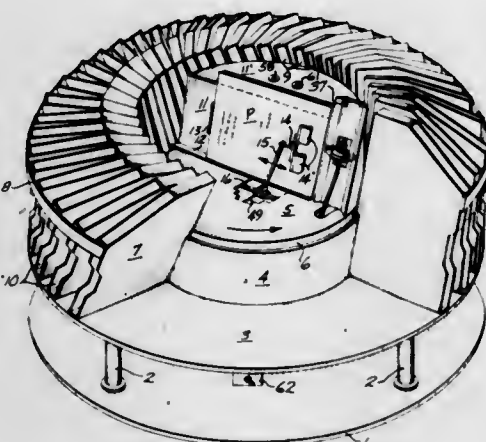
U.S. Cl. 270—58

17 Claims

A circular platform carrying a pack of sheets standing on edge extending generally radially of the platform and leaning against a sloping backing is rotated about an upright axis so that the plane of the pack face moves successively into registry with inlet slots of narrow tilted bins arranged substantially

radially edgewise around the rotating platform. A surface sheet pusher and a feed roller move successive sheets from the face of the sheet pack into circumferentially succeeding

peripheral speeds. At one point in the path a single feed roller advances the card out of contact with the first pair of feed rollers and into contact with the second pair, a leaf



spring serving to press the card against the single feed roller and allowing slippage between the card and the single feed roller, whereby tearing or bunching of the card is avoided.

3,575,411

SHEET FEEDING MECHANISM

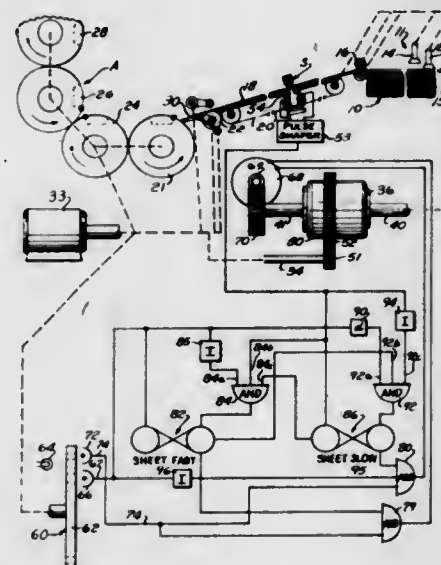
Frank L. Kastelic, Cleveland, Ohio, assignor to Harris-Inter-type Corporation, Cleveland, Ohio

Filed Oct. 14, 1968, Ser. No. 767,167

Int. Cl. B65h 9/06

U.S. Cl. 271-50

11 Claims



3,575,409

FEEDER MECHANISM

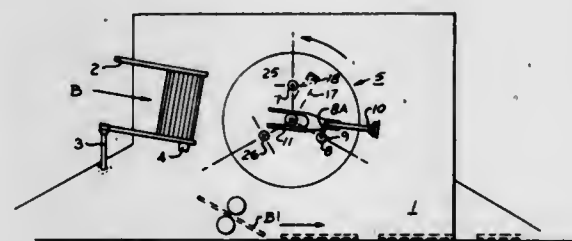
Rodney K. Calvert, Dunwoody, Ga., assignor to The Mead Corporation

Filed Dec. 3, 1968, Ser. No. 780,821

Int. Cl. B65h 3/08

U.S. Cl. 271-27

11 Claims



A feeder mechanism for withdrawing an item such as a paperboard blank from a hopper and for moving and depositing the blank at a point of application or use comprises a driving element in the form of a rotatable housing structure mounted on a drive shaft together with a driven element having a pair of spaced cams rotatably supported on the housing structure and arranged with the cams inside the housing and with a motion-tracing element disposed outside the housing. A fixed cam mounted within the housing and provided with a continuous cam surface constitutes a support for a cam-operated pawl, the pawl and cam surface being effective to impart a predetermined motion to one of the cam followers disposed within the housing. A guide block is fixedly mounted to the fixed cam and aids in controlling the motion of the other cam follower and a guide link disposed outside the housing and pivotally connected with the motion-tracing element is interconnected with the main drive shaft by a lost-motion connection and together with the pawls and cam followers imparts a desired operating motion to an article pickup element fixedly mounted on and movable with the motion-tracing element.

Sheet-sensing means senses when the lead edge of sheets moving in a stream to a register position from which they are fed to a sheet-processing machine pass a sensing location. If the sheets are late or early, the timing of mechanisms for separating sheets from the top of a pile and for forming and forwarding the stream is changed or the speed of the stream is adjusted in a direction to correct the out-of-time arrival of sheets.

3,575,412

SKIING PRACTICE EXERCISING DEVICE

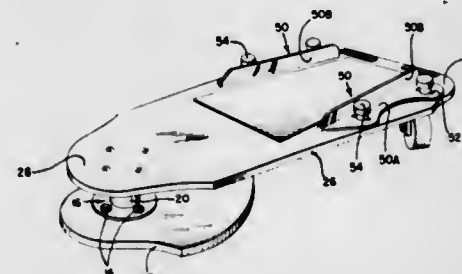
John J. Arsenian, 1103 Linley St., Bridgeport, Conn., and George G. Arsenian, 15620 2nd Place West., Alderwood Manor, Wash.

Filed May 29, 1968, Ser. No. 732,932

Int. Cl. A63b 23/04

U.S. Cl. 272-57

8 Claims



An exerciser having a base, a rigid supporting platform with forward and rear end portions, the forward end portion

3,575,410

AUTOMATIC CARD FEEDING DEVICE

Takami Suzuki, Tokyo, Japan, assignor to Kabushiki Kaisha Ricoh, Tokyo, Japan

Filed Sept. 11, 1968, Ser. No. 759,053

Claims priority, application Japan, Sept. 20, 1967, 42/80435

Int. Cl. B65h 3/06

U.S. Cl. 271-41

8 Claims

A card is fed along a card path from a stack of cards by two pairs of feed rollers which may be rotating at different

of the supporting platform pivotally mounted on the base. Antifriction means are secured to the underside of the base to prevent slipping. The rear end portion of the rigid exerciser platform is mounted on a pair of floor-engaging rollers fixed to roll about an arc around the pivot axis. A braking means is associated with the rollers to regulate the body force required to rotate the rollers and the amount of brake resistance is adjustably controlled. Upstanding spaced-apart foot-retaining guides are adjustably secured to the platform and foot stops are secured to the platform adjacent the rear ends of the retaining guides.

an inner edge of the wheel when rolling the same along the ground or when twirling the same in the air so to cause the same to be thrown therefrom and recaptured thereupon, the wheel including a plurality of openings each of which designates a different score if the roller engages the same upon recatching the wheel.

3,575,415

POCKETED BALL-RECEIVING TARGET

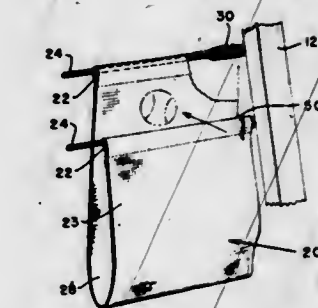
Franklin G. Fulp, Rte 1, Walkertown, N.C., and Thomas J. Darlington, 2417 Elizabeth Ave., Winston-Salem, N.C.

Filed May 17, 1968, Ser. No. 730,051

Int. Cl. A63b 63/00

U.S. Cl. 273-105

3 Claims



A ball-throwing game having a ball-receiving target with a front frame member supporting resiliently a plurality of horizontally extending ball-retaining pockets. A ball-collecting pouch extends from the top to the bottom of the rear side of the frame behind the pockets to receive and retain tossed balls which are not tossed within and held by the ball-retaining pockets.

3,575,413

VEHICLE-DRIVING GAME

Kenzo Furukawa, 698, Sokokuji, Monzen-cho, 3-chome, Karasumadori, Kamidachiuri Agaru, Higashuriu, Kamigyo-ku, Kyoto, Japan

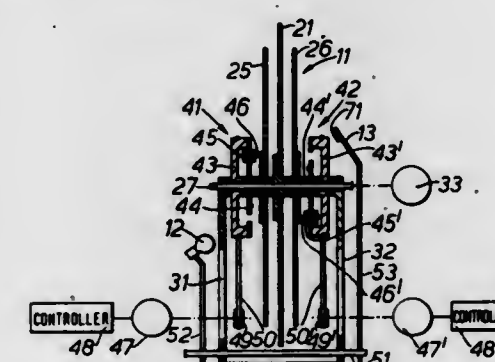
Filed June 9, 1969, Ser. No. 831,378

Claims priority, application Japan, June 24, 1968, 43-43811

Int. Cl. A63f 9/14

U.S. Cl. 273-1

7 Claims



A vehicle-driving game where the street, a first group of cars and a second group of cars are pictured on separate transparent discs. A lamp behind the discs superimposes all three images, and additionally the image of a drive-controlled car, on a screen in front of the driver. Each of the three discs is separately driven, the speed of the road-bearing disc being controlled by the driver, and the speed of the two car-bearing discs being controlled by a differential gear mechanism between the road disc and each of the car discs, and a programmed control motor for each car disc. The image on the screen shows two groups of cars, each moving at a speed independent of the other group but determined through the differential by the relative speed of the roadway and the programmed controller. A photosensitive element on the driver-controlled car controls a circuit to a sounder which sounds when the image of one of the cars on one of the discs overlaps that of the driver-controlled car and blocks the light rays from the lamp.

3,575,414

WHEEL, WHIRL AND CATCH TOY

Paul F. O'Brien, 4640 N. Broadway, Indianapolis, Ind.

Filed Sept. 10, 1968, Ser. No. 758,737

Int. Cl. A63b 67/06

U.S. Cl. 273-96

2 Claims



A novel toy including a wheel and a control handle supporting a roller, the roller engaging the circular periphery

3,575,416 APPARATUS FOR PLAYING A YARD GAME

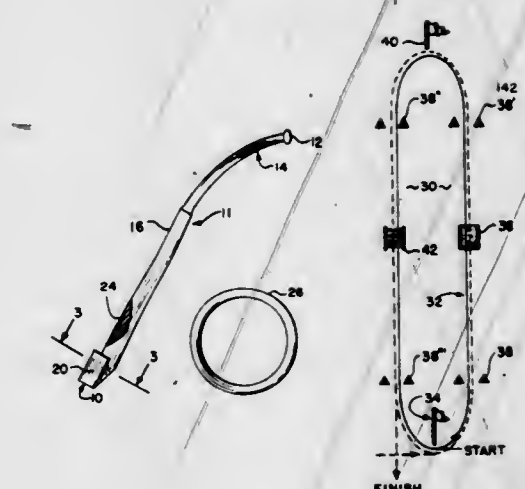
Carl H. Cooper, 3104 E. County Road, Odessa, Tex.

Filed Jan. 24, 1969, Ser. No. 793,645

Int. Cl. A63f 3/00

U.S. Cl. 273-126

3 Claims



Apparatus for playing a yard game wherein a hoop is controllably rolled along a supporting surface, such as the ground, by a staff. The staff includes an elongated shaft having a handle and a guide means thereon with a longitudinally extending groove being placed between the handle and the guide means to enable the hoop to be rolled down the groove in the staff in order to commence playing the game. An obstacle course outlined by various members placed upon the ground defines a predetermined path along which the loop may travel.

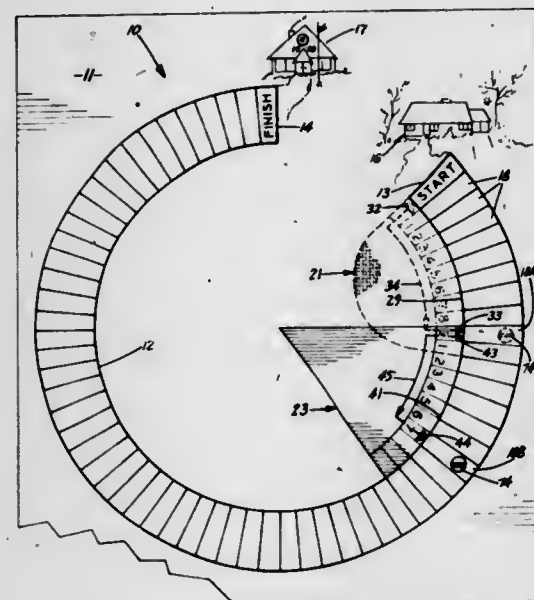
3,575,417

MEASURING GAME APPARATUS

Walker E. Sylvester, 915 Avenue C West, Bismarck, N. Dak.
Filed Feb. 7, 1969, Ser. No. 797,432
Int. Cl. A63f 3/02

U.S. Cl. 273-134

10 Claims



An educational game having a playing board with a circular path divided into equal radial segments between a start area and a finish area. A plurality of indicator cards having various lengths of measuring indicia are positionable on the board adjacent the path for measuring a distance along the path. The distance is recorded by placing a token in one of the segments. A selector operated by the player is used to indicate one of the cards.

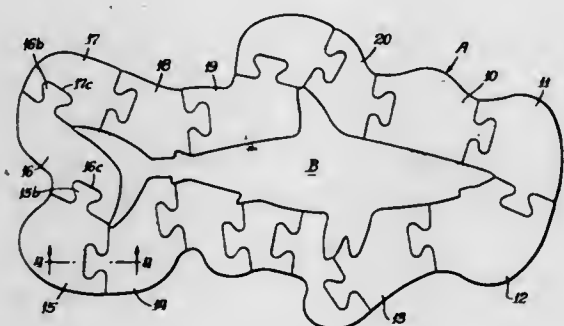
3,575,418

PUZZLE ASSEMBLY WITH INNER PERIPHERY DEFINING AN IDENTIFIABLE SHAPE

Alex D. Palmer, 507 Cambridge Circle, Deerfield, Ill. 60015
Filed Apr. 22, 1969, Ser. No. 818,253
Int. Cl. A63f 9/10

U.S. Cl. 273-157

2 Claims



A puzzle game comprising a plurality of generally planar pieces, each of which is provided with a projection and a recess. The projection of each piece is capable of being interlocked with the recess of every other piece, but not necessarily in the correct sequence which would reveal a recognizable answer shape surrounded by the assembled pieces. To form the correct preselected shape in the center, each piece must be in its proper place between two correct neighboring pieces. When all of the pieces are properly interlocked, each piece being interlocked with properly chosen pieces of the set at each end, a generally ring-shaped structure is formed, and the inner periphery of the ring-shaped structure defines the outline of a preselected identifiable object.

3,575,419

GOLF SWING PRACTICE CLUB

Wallace E. Davis, 2318 Royal Oaks Drive, Alamo, Calif.
Filed May 21, 1969, Ser. No. 826,459
Int. Cl. A63b 69/36

U.S. Cl. 273-186

7 Claims



A golf swing practice club which has a linear shaft with a handle at one end and a weighted body at the other end. The body has an axial bore with a spring-biased plunger slidably mounted therein, the plunger having an annular groove therein for removably receiving a spring-biased ball detent for yieldingly holding the plunger in its initial or starting position. An anvil screw closes the outer end of the axial bore and a swinging of the club at a certain speed in a golf swing, will cause the plunger to move along the bore by centrifugal force and to strike the anvil screw with a loud click. The follow through portion of the golf swing will slow the speed of the club and permit the plunger spring to reset the plunger with a less loud click and the ball detent will yieldingly hold the plunger in its reset position ready for the next golf swing.

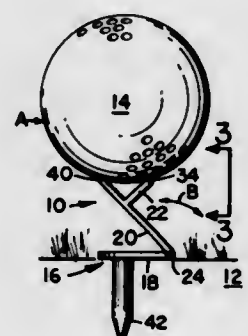
3,575,420

PIVOTABLE PLASTIC GOLF TEE

Frank E. Turner, 3 Greenfield Court, Calif., and Walter M. Smyk, San Mateo, Calif. (437 Valencia Drive, South San Francisco, Calif. 94080)
Filed Oct. 31, 1968, Ser. No. 772,188
Int. Cl. A63b 57/00

U.S. Cl. 273-207

6 Claims



A resilient plastic golf tee of one piece construction. The top elongated surface has an indented portion extending transverse to the elongated top surface thereby forming a hinge with chamfered opposed shoulders. At one end of the top surface is a ground-engaging pin and at the other end is a ball support. In use, the top portion is folded backwardly about the hinge until the chamfered shoulders engage one another to position a ball on the support in tee-off position. When the ball is struck by a club, the top portion can flex or pivot in a forward direction about the hinge axis.

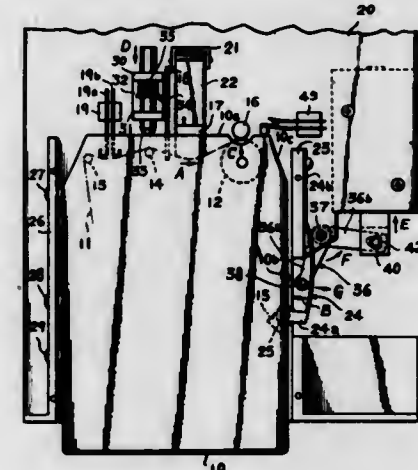
3,575,421

TAPE CARTRIDGE REJECTION APPARATUS

Yoshiro Kato, Yokohama, Japan, assignor to Victor Company of Japan, Limited, Yokohama, Japan
Filed Feb. 27, 1968, Ser. No. 708,685
Claims priority, application Japan, Mar. 3, 1967, 42/17804
Int. Cl. G11b 5/00

U.S. Cl. 274-4

2 Claims



A tape cartridge rejection apparatus having a tape cartridge formed with a recess in a side thereof, a leaf spring having thereon a guide member adapted to be urged into the recess to hold in the same position, the urging force exerted to the cartridge by the leaf spring being designed to be released at any desired time, a pushing-out rod for rejecting the cartridge by pushing a forward end thereof so that a rear end of the cartridge is moved beyond a tape recorder body to some extent for thereby disengaging a pinch roller within the cartridge from its pressing contact with a capstan of the recorder whereby the pinch roller is prevented from being deformed. The rejection apparatus is operable either at the termination of a reproducing operation of each of the channels or at any desired time during the reproducing operation thereof.

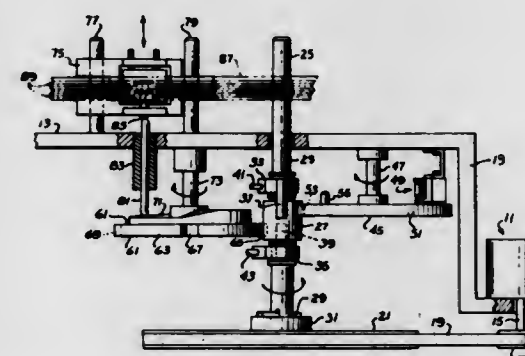
3,575,422

DRIVE SYSTEM

John Robert Peltz, Warren; Clayton Lewis Stoldt, North Warren, and Nikolaus Adalbert Szeverenyi, Warren, Pa., assignors to Sylvania Electric Products, Inc.
Continuation-in-part of application Ser. No. 643,683, June 5, 1967, now abandoned. This application Feb. 28, 1969, Ser. No. 803,201
Int. Cl. G11b 5/56

U.S. Cl. 274-4

3 Claims



A tape cartridge player having automatic channel-changing and shutoff capabilities. The player motor drives a flywheel which is attached by a shaft to the drive capstan of the player. At the appropriate times, intermittent drive mechanisms engage the rotating shaft which couples to the intermittent drive mechanisms energy from the rotating flywheel, which energy is utilized to provide the drive motion to accomplish the aforementioned auxiliary functions. The

slight damping or slowing of the flywheel and the drive capstan during these intermittent operations does not affect the system performance since the operations occur at a time when no signal is being taken from the tape.

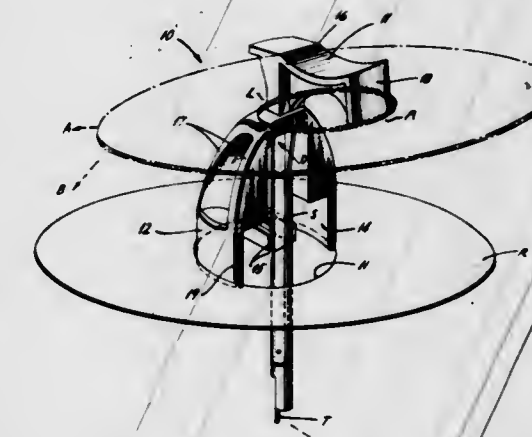
3,575,423

SPINDLE ADAPTER FOR RECORD CHANGERS

Henry E. Johnston, Huntingdon Valley, Pa., assignor to Philco-Ford Corporation, Philadelphia, Pa.
Filed June 6, 1969, Ser. No. 831,149
Int. Cl. G11b 17/04

U.S. Cl. 274-10

3 Claims



An adapter for playing large hole records on a spindle generally dimensioned for small hole records. The adapter is a one-piece body having a wide, upright stem and a forwardly projecting head. An aperture extends through the body from bottom and front parts of the stem to a rear part of the head. The bottom and front parts of the aperture are substantially wider than the spindle, while its upper rear part just admits the top of the spindle. By virtue of the large aperture portion, the adapter can be applied to the spindle with unusual facility.

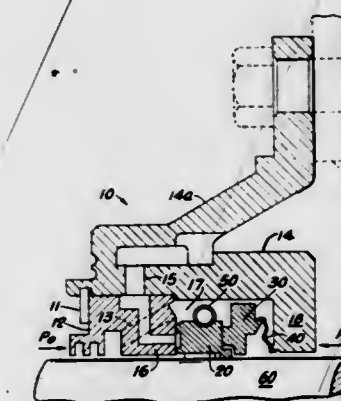
3,575,424

PRESSURE BALANCED CIRCUMFERENTIAL SEAL ASSEMBLY

Ernest J. Taschenberg, Baltimore, Md., assignor to Koppers Company, Inc.
Filed Nov. 28, 1969, Ser. No. 880,649
Int. Cl. F16j 15/16, 15/54

U.S. Cl. 277-27

6 Claims



A segmental circumferential shaft seal is provided to maintain axial and radial balance by using the distribution of fluid pressure forces applied to opposing surfaces of the seal. Compensation for radial balance is also provided at the junctions of the adjoining segments. The result is a low wear, low leakage seal having substantially low uniform contact pressure against a rotating shaft regardless of the pressure ratio across the seal.

3,575,425 CYLINDER END CAP

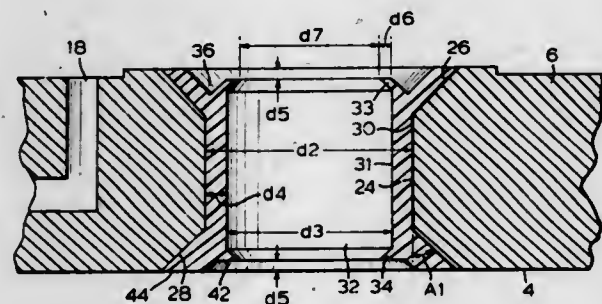
John L. Saksun, 27 Blair Athol Crescent, Irlington, Ontario, Canada

Filed Sept. 27, 1968, Ser. No. 763,323

Claims priority, application Canada, July 18, 1968, 025,481
Int. Cl. F16j 15/24, 15/32

U.S. Cl. 277-58

3 Claims

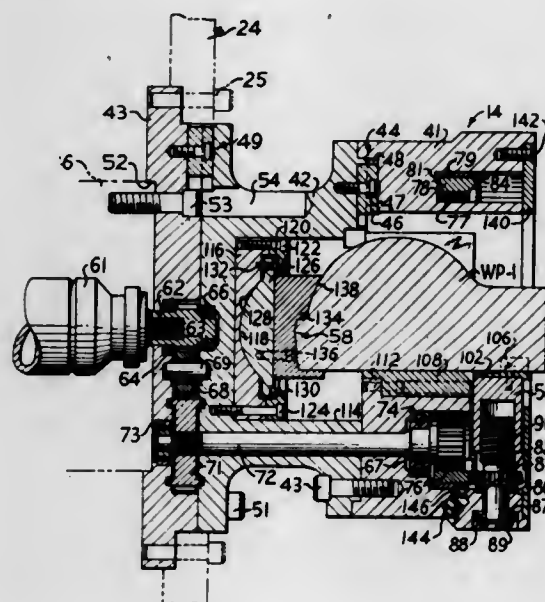


3,575,434

ROTARY CHUCK ASSEMBLY

Jozef Kiwalle, Peoria, and Eugene R. Martin, East Peoria, Ill.,
assignors to Caterpillar Tractor Co., Peoria, Ill.
Filed Feb. 28, 1969, Ser. No. 803,195
Int. Cl. B23b 31/10, 31/16, 31/30
U.S. Cl. 279-1H

7 Claims



A rotary chuck assembly having chucking members or jaws with rotary gearing being driven by a motor to operate the chucking members into engaging and releasing relation with a workpiece.

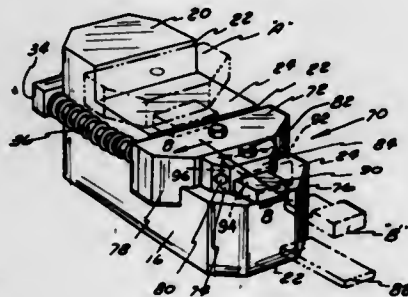
3,575,435

ATTACHMENTS FOR LATHE JAWS

Savarian F. Lemanski, Detroit, Mich. (c/o 2148 Collins Ave.,
Utica, Mich.)
Filed May 29, 1968, Ser. No. 732,986
Int. Cl. B23b 31/10

U.S. Cl. 279-123

4 Claims



A set of attachments for the chuck of an engine lathe, to assist the jaws in gripping and positioning the workpiece. The attachments disclosed include two forms of soft jaws that attach on hard jaws, a set of shims for gripping and positioning a ring-shaped workpiece on stepped jaws, two forms of stops for positioning the end of the workpiece in selected positions in the jaws, and an adapter having a friction surface and magnetic means for engaging and longitudinally supporting the end of a workpiece that cannot normally be engaged between the jaws.

3,575,436

BASKET-CARRYING FRAME FOR THREE-WHEELED VEHICLES

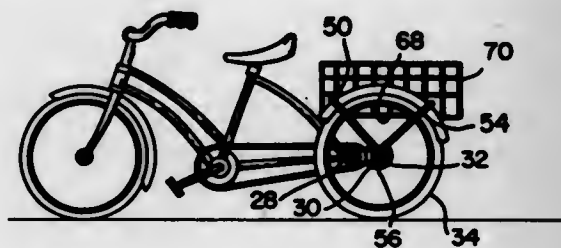
Raymond E. Templeton, Rte. 2, Box 766, Peoria, Ariz.
Filed Oct. 26, 1967, Ser. No. 678,423
Int. Cl. B62k 13/04; B62j 7/04

U.S. Cl. 280-7.15

1 Claim

A basket-carrying frame for three-wheeled vehicles comprising a frame for converting a bicycle to a tricycle which includes an auxiliary frame having two pairs of forks disposed

in straddling relation with two rear wheels of a converted bicycle, said auxiliary frame also comprising a pair of horizontally disposed crossmembers disposed between the



said pairs of forks, said crossmembers being substantially on a common plane to support the bottom portion of a luggage basket, or the like.

3,575,437

RELEASABLE HEEL RETAINER FOR SKI BINDING WITH MEANS FOR OPTIONAL SETTING FOR STARTING AND CROSS COUNTRY EVENTS

Paul Unger, Bruckwiesenstrasse 113, 8501 Altenberg near
Nurnberg, Germany

Filed Oct. 20, 1969, Ser. No. 867,798

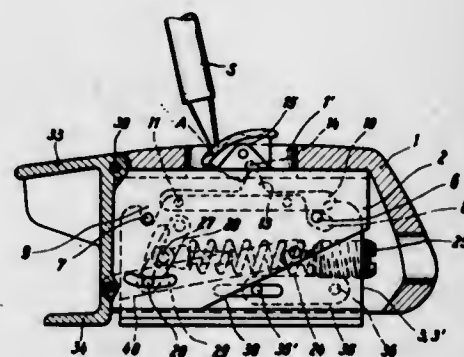
Claims priority, application Germany, Oct. 19, 1968,

P 18 03 996.8

Int. Cl. A63c 9/00

U.S. Cl. 280-11.35

16 Claims



Releasable heel retainer for a ski binding that can be optionally set for starts or cross-country runs and which is guided on a stationary base portion for rocking movement and is also displaceable relative thereto, and which comprises a base, an intermediate housing supporting an outer housing that carries a sole-holding member, where the connection between the intermediate housing and the base portion is defined by forward and rearward joints that extend horizontally and transversely of the binding and which can be raised from the base by means that optionally free either the rear joint while latching the front joint or vice versa.

3,575,438

RELEASING HEEL RETAINER FOR SKI BINDING

Paul Unger, Bruckwiesenstrasse 113, 8501 Altenberg near
Nurnberg, Germany

Filed Oct. 20, 1969, Ser. No. 867,767

Claims priority, application Germany, Oct. 19, 1968,

P 18 03 997.9

Int. Cl. A63c 9/00

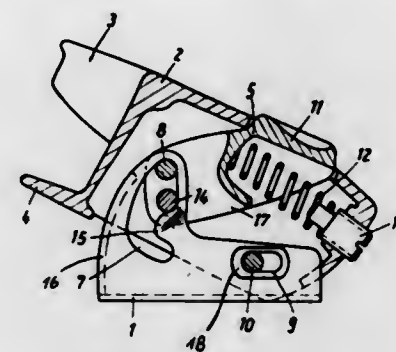
U.S. Cl. 280-11.35

10 Claims

A releasable heel retainer for ski binding that is rockable about an axis extending transversely of a fixed base that is disposed longitudinally of the ski which has a linked joint between the release means and the housing of the sole retainer and where the rearward end of the housing is slidably guided on the base where it is also pivotally linked and protected against rising from the base and which furthermore has a spring biased releasable latch that fixes the heel retainer in open position and where the front linkage or joint

of the heel retainer is a sliding joint on the base part, whereby the housing that carries the sole-retaining part is

has a peripheral molding attached thereto and extending therearound. Corner brackets underlie said shelf and are connected to said molding and to end braces which also underlie said shelf in abutting relation to said brackets and molding. Fastening elements extend through aligned openings in the brackets, end braces, and molding for reception in said uprights to connect said shelf to said uprights.



3,575,441

VEHICLE SUSPENSION

Klaus H. Arning, Birmingham, and Robert H. Transou, Jr.,
Detroit, Mich., assignors to Ford Motor Company, Dearborn, Mich.

Filed Dec. 23, 1968, Ser. No. 785,875

Int. Cl. B60g 11/50

U.S. Cl. 280-124

15 Claims

guided by means of sliding members such as bolts, pins or projections in slots on the base.

3,575,439

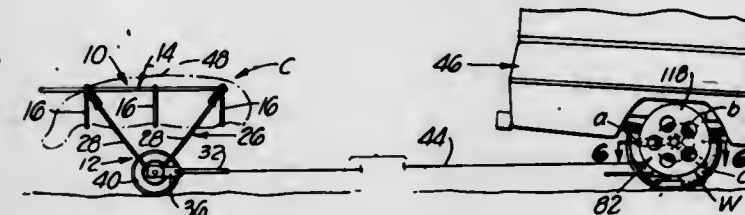
LOAD CONVEYING CART

Abbie M. Lusk, P.O. Box 7644, Riverside, Calif.
Filed June 26, 1968, Ser. No. 740,382

Int. Cl. B62b 1/10

U.S. Cl. 280-47.3

4 Claims



A carrying cart useful for game animal retrieval purposes, and a winch useful for pulling the cart. The cart is of narrow, lightweight, open frame construction and has a detachable load basket supported at about waist height by an undercarriage. It rolls on a single wheel mounted at the center of an axle running the full width of the cart. The winch is attachable to the hub of a jacked-up drive wheel of an automobile where it operates coactively with the wheel hub to pull the loaded cart by means of a connecting cable.

A rear suspension system for a motor vehicle having a rigid axle housing and a pair of lower suspension arms interconnecting the axle housing with the vehicle chassis. The arms are angled forwardly and outwardly. A stabilizer bar has its center portion extending transversely of the vehicle body and connected to the vehicle frame. The ends of the bar form integral upper suspension arms that extend rearwardly and outwardly and are secured to the axle housing. The stabilizer bar, in combination with the splayed lower arms, controls body roll, lateral body movement and axle windup.

3,575,440

SERVING CART

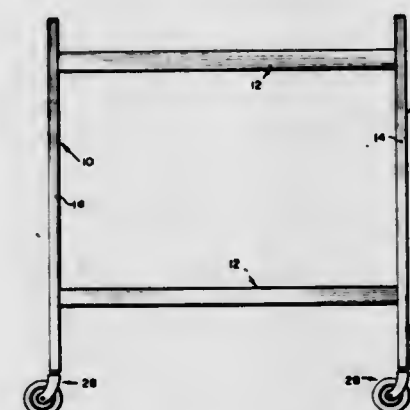
Ralph B. Lay, Columbus, Ind., assignor to Hamilton Cosco
Inc., Columbus, Ind.

Original application May 19, 1968, Ser. No. 733,174. Divided
and this application Sept. 16, 1969, Ser. No. 858,359

Int. Cl. B62b 5/00

U.S. Cl. 280-79.3

3 Claims



A serving cart in which there is a pair of end frames each formed from a pair of wheeled uprights interconnected at their upper and lower ends by upper and lower transverse stretches. A shelf is interconnected to said end frames and

3,575,442

SEMI-AUTOMATIC DOOR ACTUATED VEHICLE LEVELING SYSTEM

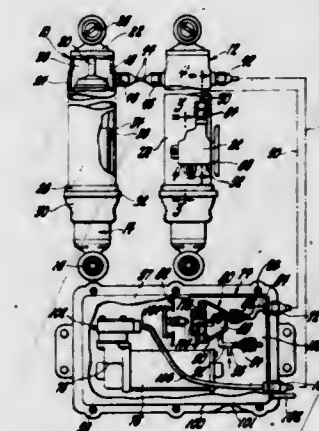
James O. Elliott, Xenia, and James E. Whelan, Dayton, Ohio,
assignors to General Motors Corporation, Detroit, Mich.

Filed July 14, 1969, Ser. No. 841,266

Int. Cl. B60g 17/00

U.S. Cl. 280-124

6 Claims



In the preferred form, a vehicle leveling system having an electrically motor driven compressor that is directly commu-

licated with a pair of fluid springs for maintaining a predetermined height relationship between the sprung and unsprung mass of a vehicle. A controller includes vehicle door operated light switches normally opened when the vehicle doors are closed. When the door is opened and closed a hold circuit is closed for a relay-operated motor energization switch. The hold circuit includes a normally closed pressure responsive switch. Following a predetermined pump-up phase a mechanically operated height controller exhausts the spring and conditions the pressure switch to open the hold circuit to deenergize the electric motor.

3,575,443

GO GO WHEEL COASTER

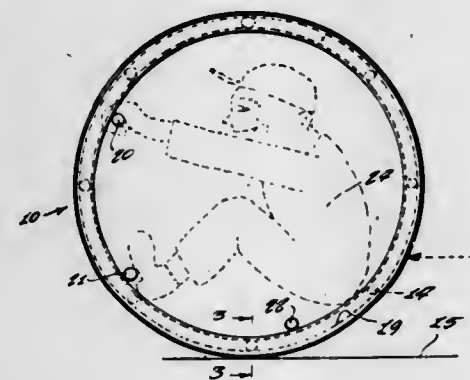
Ralph Aguilar, Glasgow-Cardiff By Sea, Calif. (1068 Santa Fe Drive, Encinitas, Calif. 92024)

Filed Oct. 24, 1968, Ser. No. 770,260

Int. Cl. B62b 11/00

U.S. Cl. 280—206

1 Claim



An amusement ride device for a child or other person. The device including a rotatable outer tire and an inside hoop which is carried by roller bearing means within the tire, the hoop including a transverse handlebar, leg stretch bar against which a rider within the hoop may secure himself by bracing, the hoop remaining in a nonrotating position while the tire rotates during travel across the ground.

3,575,444

SEMITRAILER DOLLY AND TRACKING TRAILER FOR FREIGHT CONTAINERS

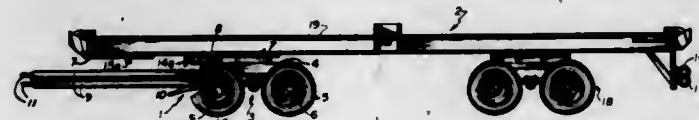
James Veenema, 245 Arbor Road, Franklin Lakes, N.J.; Fred Muller, Jr., 120 Ridgedale Ave, Florham Park, N.J., and John A. Johnson, 9 Sheridan Drive, Short Hills, N.J.

Filed Nov. 29, 1968, Ser. No. 779,008

Int. Cl. B62d 53/00

U.S. Cl. 280—408

11 Claims



A dolly is provided for supporting and connecting a semitrailer to a towing vehicle and particularly to a preceding semitrailer or trailer to form a train of trailers. Each dolly comprises crossed towing bars for effecting absolute tracking of a semitrailer and fifth wheel means for engaging a semitrailer. A tracking trailer for freight containers is also provided, the tracking trailer having crossed towing bars for connection to a towing vehicle. The invention also resides in the provision of towing bars for the tracking trailer and dolly of a size and weight which permits for manual handling thereof. In addition, guide plates are provided which are substantially triangular in cross section and are adapted to align and position containers on a semitrailer or trailer.

3,575,445

THERMALLY INSULATED PIPE

David Walter French, Somerville, N.J., assignor to Johns-Manville Corporation, New York, N.Y.

Original application June 24, 1965, Ser. No. 466,554, now

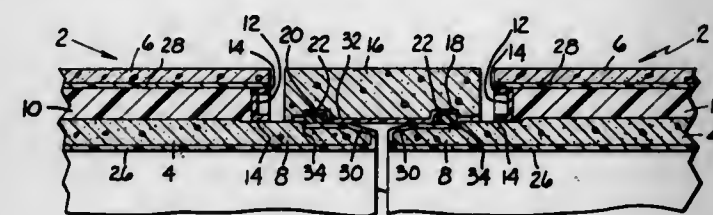
Patent No. 3,491,171, dated Jan. 20, 1970. Divided and this

application May 5, 1969, Ser. No. 821,880

Int. Cl. F16l 55/00

U.S. Cl. 285—47

5 Claims



A thermally insulated pipe comprising an outer and inner asbestos-cement pipe held in supported and spaced relationship by thermally insulated material.

3,575,446

QUICK-CONNECT COUPLER

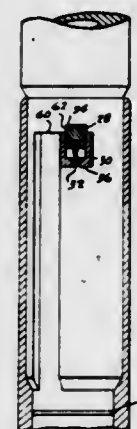
Don W. Brantley, Lafayette, La. (P.O. Box 26564, New Orleans, La. 70126), and Uvon Skipper, 11607 Hillcroft St., Houston, Tex.

Filed Feb. 28, 1969, Ser. No. 803,327

Int. Cl. F16l 15/00

U.S. Cl. 285—85

4 Claims



A quick-connect coupler including axially interfitting male and female cylindrical members with the male member having a J-shaped slot formed in its outer face. The long leg of the slot extends longitudinally of the male member and the short leg thereof extends generally perpendicularly to the long leg at the end thereof opposite the free end of the male member.

The female member is provided with a lug on its inner face which engages in the J-shaped slot and upon rotation of the female member with respect to the male member secures the members together. A spring-pressed key is provided in the lug to engage in an offset portion of the short leg of the slot. In one form of the invention the key is permanently held in the offset portion permanently locking the members together. In another form the key and offset portion are shaped so that reverse torque applied to the members will cause the key to retract from locking position. In still another form the key is provided with an externally actuated cam for retracting the key.

3,575,447

TUBE FITTING

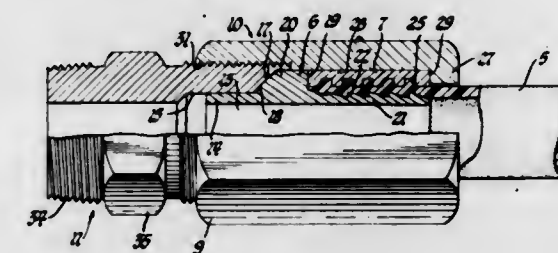
Ralph H. Merkle, Brighton, Mich., assignor to General Motors Corporation, Detroit, Mich.

Filed Mar. 24, 1969, Ser. No. 809,747

Int. Cl. F16l 33/20

U.S. Cl. 285—248

4 Claims



A fitting, particularly suited for use with nylon and other polymer tubing for air brake systems and the like, comprises a coupling insert with an externally ridged insert portion extending into the tube and a coupling portion extending from the end of the tube; an internally ridged sleeve tightly enclosing the tube around the insert portion and having one end bearing against a shoulder on the coupling portion; and a nut bearing against the other end of the sleeve and threaded to engage a fitting to which the coupling portion is removably connected. The insert portion is expanded to fix the fitting permanently on the tubing.

3,575,448

FASTENER

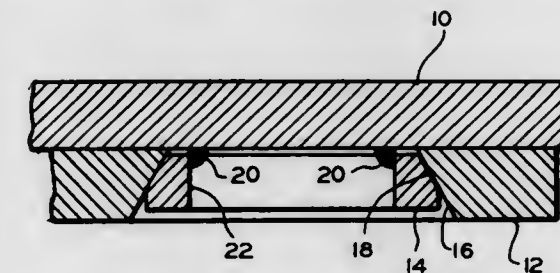
Vincent Licari, St. Joseph, Mich., assignor to Clark Equipment Company

Filed June 12, 1969, Ser. No. 832,793

Int. Cl. F16b 4/00

U.S. Cl. 287—189.36B

3 Claims



A fastener consisting of two members secured together by welding, with a third member securely clamped between the two members by the shrinkage of the weld as it cools.

3,575,449

KNOT-TYING DEVICE AND METHOD

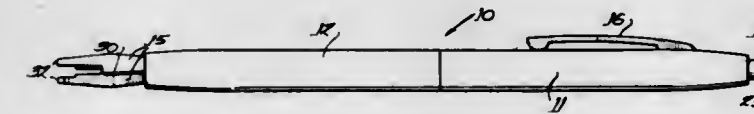
Charles W. Browning, 4645 E. 57th St., Tulsa, Okla.

Filed May 5, 1969, Ser. No. 821,658

Int. Cl. B65h 69/04

U.S. Cl. 289—1.5

9 Claims



A knot-tying device and method, especially for use in the knotting of monofilament line to fishing lures or hooks, with the device including a casing housing a pushrod or stem which is secured to or integral with a pair of outwardly sprung blades having prongs or ends adapted to be projected outwardly of the casing. The prongs or ends include cutting blades that terminate in offset clamping jaw ends; the blades having a squeeze ring movable thereover located within the

casing to move the ends together as the blades are retracted into the casing. The line is initially threaded through the eye of the hook with the end clamped in the jaws, the line is wound several times around the casing, the end of the casing is passed through the loop in the line, and the end of the line is released and the device withdrawn so the knot formed can be tightened.

3,575,450

IMPACT GUARD

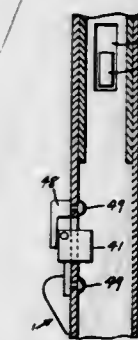
Albert F. Lang, 20 Emerson Terrace, Bloomfield, N.J.

Filed May 19, 1969, Ser. No. 825,543

Int. Cl. E05c 19/00; E05b 65/44, 13/00

U.S. Cl. 292—1

10 Claims



A guard is disclosed for a door-latching device for preventing improper opening of the door through the application of forceful impact against the door latching mechanism.

3,575,451

LOCKING MECHANISM FOR LOAD-DIVIDING GATE

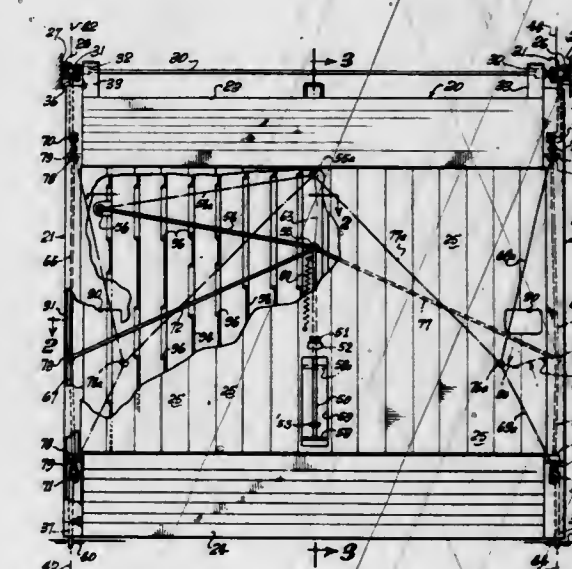
Marion G. Konrad, Hacienda Heights, and John W. Erickson, Huntington Beach, Calif., assignors to Preco, Inc., Los Angeles, Calif.

Filed Aug. 7, 1968, Ser. No. 750,822

Int. Cl. E05c 9/06

U.S. Cl. 292—35

2 Claims



Locking pins for load-dividing gates in freight vehicles and the like are operated by a linkage that includes a coupling member movable parallel to the plane of the gate and laterally of the axis of movement of the locking pin. The member is coupled by pivoted links to the pin and to a pivot mounted on the gate. That pivot may be fixed on the gate, or may be carried by a second pin, oppositely projectable along the same axis as the first. In gate locking position of the pins, the links typically are essentially parallel, positively locking the pins in projected positions. All pins can typically be operated from the center of the gate or from either gate edge, the links themselves providing operating handles in many forms of the invention.

3,575,452

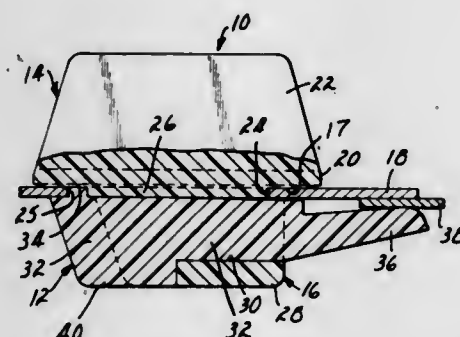
PANEL LATCH

Jack P. Blomgren, Maplewood, Minn., assignor to Minnesota Mining and Manufacturing Company, St. Paul, Minn.
Filed Apr. 14, 1969, Ser. No. 815,702

Int. Cl. E05c 3/04

U.S. Cl. 292-202

6 Claims



A latch formed of a body piece having a bearing surface to contact one face of a panel and a shank to project through a circular panel aperture which shank is formed with a diametrical aperture, and a crosspiece inserted into the shank aperture to bear on the opposed face of a panel and having a tongue to engage a second panel upon rotation of the latch and a locking tab to extend into a said panel aperture along the body piece shank to positively retain the latch on a panel from movement along its axis.

3,575,453

EASY DOOR OPENER

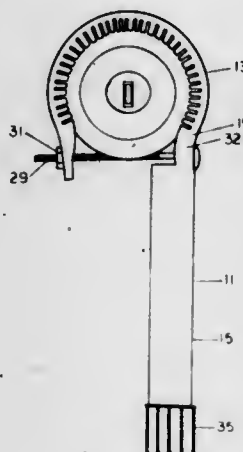
Philip M. Hohl, Punta Gorda, Fla. (5361 Virgil, P.O. Box 67, Troy, Mich. 48064)

Filed Mar. 16, 1970, Ser. No. 19,961

Int. Cl. E05b 3/00, 1/00

U.S. Cl. 292-336.3

3 Claims



Easy door opener with a door knob grip section and a lever handle section. The door knob grip section is a resilient curved elongated thin element with inner and outer ends, almost closed on itself and having an inverted U-shaped cross section, serrated with teeth on opposed parallel edges. The inner end terminates in an outwardly extending lever handle which is joined to the inner end at a junction, and extending over this junction to the outer end of the grip section is a threaded member whereby the curved grip section can be placed around a door knob and the threaded member fastened so that the resilient grip section closes in on the handle. The serrated teeth grip the contours of the door knob and the user can readily open the door with the lever handle.

3,575,454

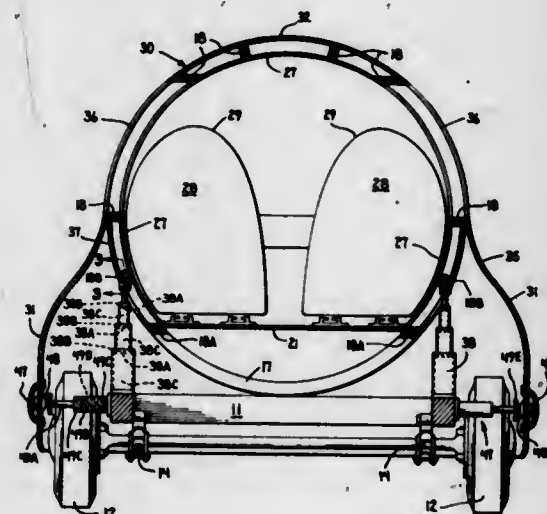
BUMPER SHOCK-ABSORBING VEHICLE

Martha C. Mecker, 5768 N. Ewing, Indianapolis, Ind.
Continuation-in-part of application Ser. No. 556,187, June 8, 1966, now abandoned. This application Apr. 1, 1969, Ser. No. 837,968

Int. Cl. B60r 19/08; B61f 19/04; B62d 23/00

U.S. Cl. 293-62

2 Claims



A vehicle operable on conventional roads under driver control and on a monorail system under other than driver control. The vehicle has a body mounted to a frame by frangible members. Wheels are rotatably mounted to the frame for supporting the vehicle. Plungers having spring-biased pistons are mounted to the frame and are aligned with rubber grommets secured to a shell extending down from and surrounding the body. A rubber bumper is mounted to the outside surface of the shell. A rail-engaging carriage is secured to the underside of the vehicle.

3,575,455

PAN CARRIER

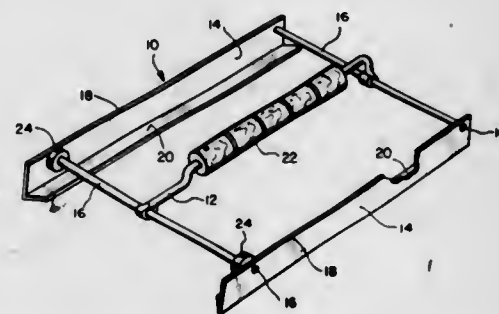
Roy W. Bloch, Northbrook, Ill., assignor to Ekco Products, Inc., Cook County, Ill.

Filed May 28, 1969, Ser. No. 828,541

Int. Cl. B65g 7/12

U.S. Cl. 294-16

3 Claims



A pan carrier has a pair of opposed pan-engaging members having horizontal flanges and a pair of gripping members which facilitate the handling of pans having peripheral flanges.

3,575,456

MODULAR SHIPPING AND STORAGE UNITS

Therian E. Austin, 646 W. Walnut Ave., El Segundo, Calif.
Filed July 23, 1969, Ser. No. 843,999

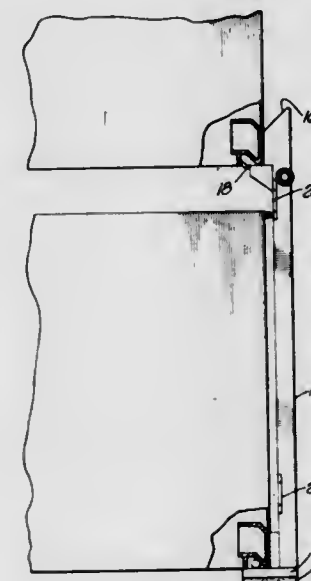
Int. Cl. A66c 1/00

U.S. Cl. 294-67

6 Claims

A modular and expandable device for multiple stacking of sheet metal rooftop air conditioning units or other units having a structure of such integrity as to resist moment loadings as occur in handling, storing and shipping of said units. This

device may be used for stacking any standardized rigid container which is used for housing and/or storing and shipping. The modular devices consist of a support column with sloping ram portion to guide the upper stored unit onto a support foot, a plurality of ear members on both sides of the columnar device and one brace member associated with each



columnar device which may be switched to either side ear member of the columnar device to form either a right- or left-hand member. When two or more columnar devices are operated in conjunction with each other these braces are connected from the top of one columnar device to the bottom of the other columnar device to provide cross braces between the columnar devices.

3,575,457

MUSHROOM HOOK

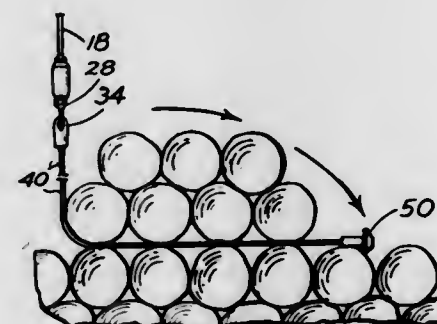
Charles C. Wallace, Portland, Oreg., assignor to West Coast Wire Rope and Rigging of Portland, Inc., Portland, Oreg.

Filed Oct. 21, 1968, Ser. No. 769,315

Int. Cl. B66c 1/12

U.S. Cl. 294-74

4 Claims



A mushroom-shaped hook having a stem to which the free end of a line may be secured and a disc-shaped cap joined to the stem and projecting radially outwardly from and substantially encompassing the stem. The cap is adapted to hook onto material upon which the hook rests to inhibit movement of the hook and the free end of the line on tensing the line. A line-receiving passage extends axially through the stem and a slot along the side of the stem connects with the passage to allow a line to be slipped laterally into the passage. A shoulder is provided within the passage against which a ferule on the end of such a line may bear to secure the line within the passage.

3,575,458

HOOK AND LATCH WITH LOCK

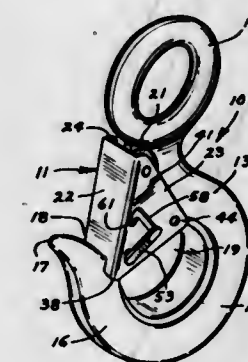
Edward J. Crook, Jr., Fort Wayne, and Franklin P. Becker, Decatur, Ind., assignors to American Hoist & Derrick Company, St. Paul, Minn.

Filed Feb. 27, 1969, Ser. No. 802,787

Int. Cl. B66c 1/36

U.S. Cl. 294-82

14 Claims



A latch connected to a crane hook to prevent accidental disengagement of the load from the hook. The latch pivotally mounted on the hook shank has side portions which straddle the tip of the hook and the shank of the hook when the latch is in the closed position. A locking member pivotally mounted on the latch is operative to prevent movement of the latch to the open position.

3,575,459

CARGO HOOK ASSEMBLY

Jack Coblenz, Vancouver, B.C., Canada, assignor to Okanagan Helicopters Ltd., Vancouver, B.C., Canada

Filed June 17, 1968, Ser. No. 737,783

Claims priority, application Canada, Aug. 24, 1967, 998,609

Int. Cl. B64d 17/38; B66c 1/34

U.S. Cl. 294-83

10 Claims



An automatically releasing cargo hook having an eccentrically mounted locking mechanism which must be rotated intentionally a predetermined amount before the load may drop. Two overcenter lines of action cause positive locking. A modification of the basic hook provides an automatic pickup capability, with pairs of hook elements, locking and release mechanism being symmetrically disposed on opposite sides of the axis of the cargo hook.

3,575,460

FOLDABLE SLEEPING ACCOMMODATIONS FOR ATTACHMENT TO A ROAD VEHICLE

Wesley W. Kennedy, 10014 S.E. 8th St., Bellevue, Wash.
Filed Apr. 7, 1969, Ser. No. 815,266

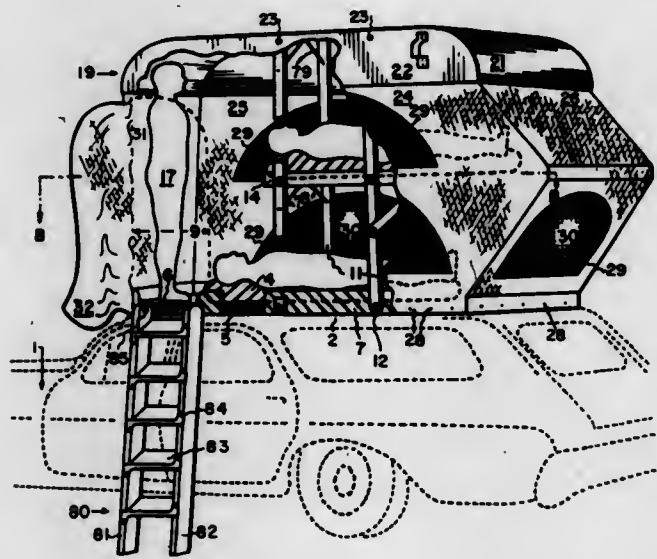
Int. Cl. B60p 3/34

U.S. Cl. 296-23

9 Claims

A portable sleeping mechanism, primarily for use atop a road vehicle, comprised of two sleeping decks, each on different levels and permanently interconnected by movable struts, which constitute the support-actuating means that collapses the unit and moves the upper deck down to a con-

tiguous compaction on the lower deck for storage and transport; and also, expands the unit by orienting the decks on horizontal and parallel planes, one above the other transver-



salwise but offset longitudinalwise to provide sleeping space on both decks and adult standup dressing space at one end of the unit extending upward from the lower sleeping deck.

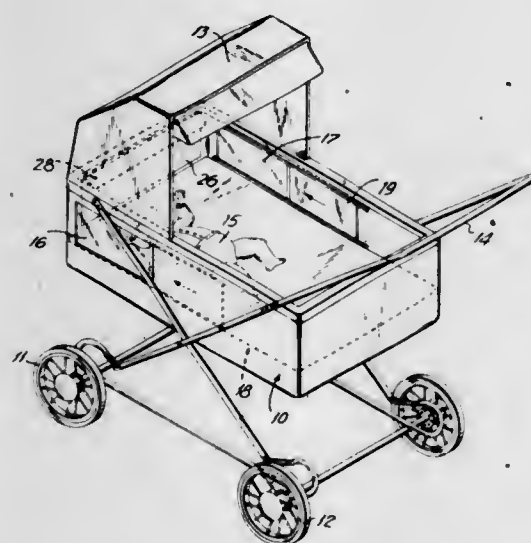
3,575,461

BABY CARRIAGE

Gerald M. Goldman, 185 Bronx River Road, Westchester County, N.Y., and Sherman Smith, Nassau County, N.Y.
Filed Sept. 5, 1968, Ser. No. 757,584
Int. Cl. B62b 9/10

U.S. Cl. 296-28

2 Claims



This invention relates to a baby carriage which provides a stimulating environment that allows an infant to increase its intellectual development. Transparent materials are inserted in strategic parts of the baby carriage to allow the infant to look through. This new concept in baby carriages provides the infant with the opportunity of using its visual powers more effectively by making available more for the infant to see.

3,575,462

LATCH RELEASE SYSTEM

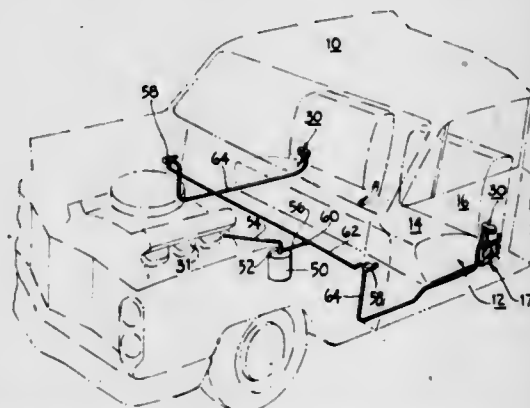
William C. Riester, Williamsville, N.Y., assignor to Trico Products Corporation, Buffalo, N.Y.
Original application Aug. 24, 1967, Ser. No. 662,934, now Patent No. 3,516,704. Divided and this application Aug. 15, 1969, Ser. No. 870,980
Int. Cl. B60r 21/00

U.S. Cl. 296-65

5 Claims

A motor vehicle having a seat back pivotal relative to the seat with a latch for preventing relative pivotal movement

between the seat and seat back. A remote controlled latch actuator system includes a fluid pressure differential energized servo unit supplied by a bellows type pump or vacuum from the intake manifold through a remotely disposed valve assembly, either solenoid operated or mechanically operated,



in response to opening or closing of a vehicle door for supplying fluid pressure to the servo unit. A single door switch operates a courtesy light and the solenoid valve. A diode separates the manual courtesy light switch from the door switch circuit.

3,575,463

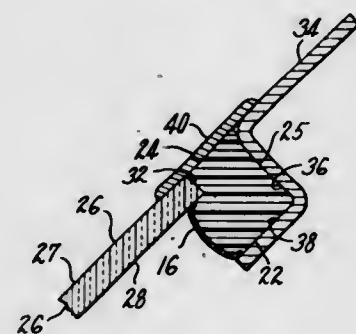
WINDSCREEN BONDING STRIPS

George Kolevas, 24 Lindsay St., Mac Leod, Victoria, Australia

Filed Apr. 11, 1968, Ser. No. 720,581
Claims priority, application Australia, May 3, 1967, 21186
Int. Cl. B60j 1/00

U.S. Cl. 296-93

3 Claims



A bonding strip for a vehicle windscreen constituting an elongated body of butyl rubber substantially constant in cross section and having a fabric overlay adhered to part of the surface and extending throughout the effective length of the elongated body.

3,575,464

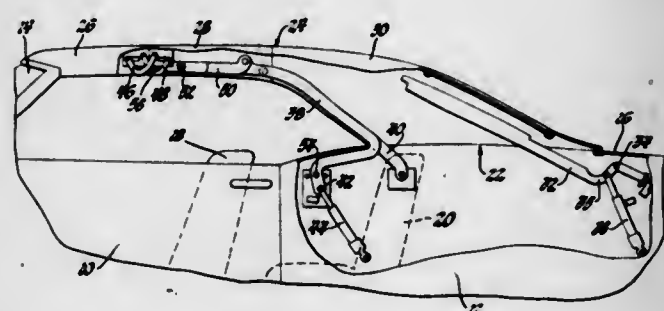
FOLDING RETRACTABLE HARD TOP

John Himka, Farmington, and Ronald A. Niewolak, Warren, Mich., assignors to General Motors Corporation, Detroit, Mich.

Filed Sept. 29, 1969, Ser. No. 861,707
Int. Cl. B60j 7/12

U.S. Cl. 296-117

6 Claims



An automobile body having a three-section, hard top roof is disclosed. The front two sections are movable to a stored

position in the rear shelf area of the passenger compartment providing an open sun roof.

3,575,465

MODULAR CONSTRUCTION

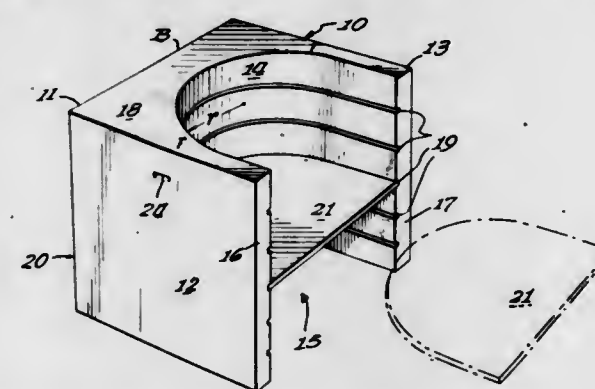
John Dolby (0), and James Adler, Evanston, Ill., assignors to Evolutions IV Corporation, Chicago, Ill.

Filed June 25, 1969, Ser. No. 836,304

Int. Cl. A41c 13/00

U.S. Cl. 297-118

5 Claims



A modular construction adaptable for a multitude of furniture purposes consisting of a generally cubed-shaped structure having a first planar surface and two parallel planar surfaces extending at 90° from the first planar surface and a recessed surface located between said parallel planar surfaces and said recessed surface having means for receiving an holding rigid planar elements.

3,575,466

GERIATRIC CHAIR

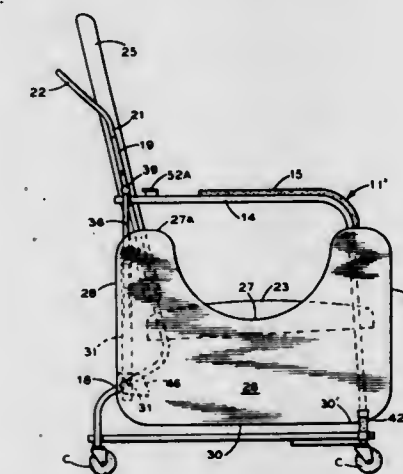
Morton I. Thomas, Monroe; Donald W. Edwards, New York, N.Y., and John Hatala, Clifton, N.J., assignors to Femco Products, Inc., Edco Surgical Supply Company, a fraction part interest to each

Filed Oct. 31, 1968, Ser. No. 772,148

Int. Cl. A47c 7/02

U.S. Cl. 297-155

9 Claims



A chair construction particularly adapted for use by invalids or elderly people and including a table member which is movable between a storage position and a position for normal use; the chair having features of construction which increase the efficiency thereof while markedly reducing possibilities of injury to the occupant of the chair.

3,575,467

CUTTER BIT AND BLOCK

Charles S. Davis, Benton, Ill., assignor to Carmet Company, Pittsburgh, Pa.

Filed Mar. 11, 1969, Ser. No. 806,171

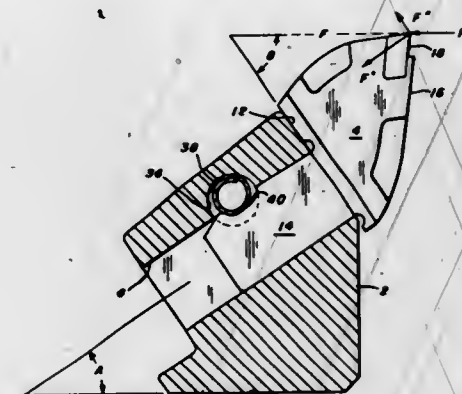
Int. Cl. E21c 35/18

U.S. Cl. 299-92

5 Claims

Cutting apparatus for use in underground mining industry including a cutting tool holder and a cutting tool containing a carbide cutting insert where the cutting tool includes a head

portion and a shank portion disposed substantially perpendicularly to the head portion, the cutting tool shank being received in a bore in the cutting tool holder disposed at an



acute angle to the cutting insert and in which cutting apparatus the forces resulting from the cutting action are communicated substantially axially to the cutting tool holder.

3,575,468

VEHICLE WHEEL COVER

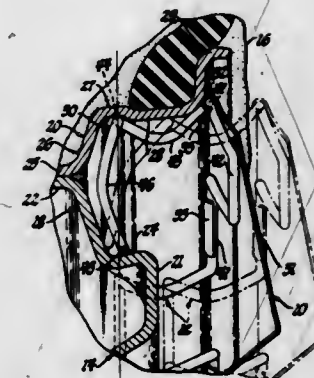
Harley L. Kapanka, Utica, Mich., assignor to General Motors Corporation, Detroit, Mich.

Filed Aug. 6, 1969, Ser. No. 847,840

Int. Cl. B60b 7/06

U.S. Cl. 301-37

3 Claims



A vehicle wheel cover assembly having a spring retention device for releasably securing a wheel cover to a wheel by means of a formed annular wire spring comprising sets of outer cover-engaging segments, sets of which are interconnected by inner cover-engaging segments with a plurality of reentrant axial segments interconnecting the outer cover-engaging segments with outer wheel-engaging segments and, with inner wheel-engaging segments connected to the outer wheel-engaging segments by reentrant radial segments all formed integrally as part of the wire spring.

3,575,469

GAS INJECTION ARRANGEMENT FOR PREVENTING PIPELINE SLUMPING

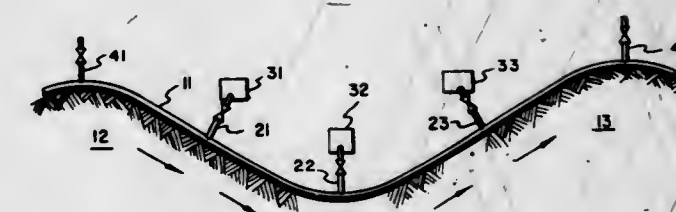
Frank L. Meyer, Houston, Tex., assignor to Shell Oil Company, New York, N.Y.

Filed Apr. 11, 1969, Ser. No. 815,369

Int. Cl. B65g 53/30

U.S. Cl. 302-14

6 Claims



Method and apparatus for preventing downhill slumping in a shutdown slurry pipeline. Upon shutdown of the pipeline, a gas is injected into the line at selected locations to fluidize

the solids, thereby preventing the formation of solid particle plugs in the low regions of the line. If insufficient gas is injected to fluidize the settling solids, a channel will be formed in the upper portion of the pipe which will enable flow and pressure transmission for resuspending the solids upon restart.

The present invention relates to pipeline transport operations; and more particularly, to a method and apparatus for preventing the downward movement of slurry solids in an inclined portion of pipeline during a shutdown period and for the plugging of the pipeline by said solids particles.

Transportation by pipeline is a major and growing industry. With the use thereof formerly confined almost entirely to movement of water, gas and petroleum products, pipelines, with the advent of slurry transport, have become useful for long and short hauls of a wide variety of raw materials and finished products.

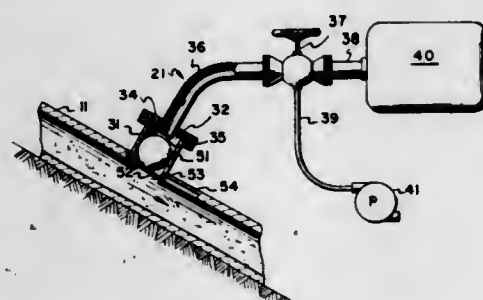
With respect to the pipeline transportation of materials in slurry form, problems may arise when such materials are moved through pipelines inclined to go over a hill or down into a valley of such inclination to cause slumping. At these locations, during a planned or emergency line shutdown, the solids of the transported slurry may settle out vertically and subsequently slump down the inclined portions of the pipeline, thereby causing a compacted plug which may be very difficult to dislodge and move when line shutdown is terminated and transport activities are attempted.

These difficulties are most commonly avoided by laying solids-carrying or slurry pipelines so that they do not exceed a slope or angle of inclination below which slumping does not occur. Alternatively, the inclined pipeline sections are emptied or flushed of solids at each shutdown. Obviously, these alternative prior art approaches are not always feasible or economical, especially in those situations where long and relatively steep slopes are encountered. Slopes of this nature are being encountered with increasing frequency as pipeline operations are being extended to new relatively inaccessible mountainous areas in the United States and elsewhere.

3,575,470
IMPERVIOUS BODY INJECTION ARRANGEMENT FOR PREVENTING PIPELINE SLUMPING
Frank L. Meyer, Houston, Tex., assignor to Shell Oil Company, New York, N.Y.
Filed Apr. 11, 1969, Ser. No. 815,368
Int. Cl. B65g 53/30

U.S. Cl. 302-14

7 Claims



Method and apparatus for limiting downhill slumping in a shutdown slurry pipeline. Devices are placed along the sloping portions of the pipe whereby impervious bodies are injected into the pipeline through conduits when flow conditions dictate. The impervious bodies limit downward movement of the slurry solid phase when the principal driving force is gravity.

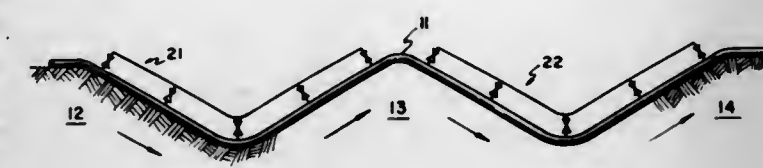
3,575,471
SLURRY PIPELINE WITH RESTART BYPASS MANIFOLD
Frank L. Meyer, Houston, Tex., assignor to Shell Oil Company, New York, N.Y.
Filed Apr. 11, 1969, Ser. No. 815,365
Int. Cl. B65g 53/30

U.S. Cl. 302-14

7 Claims

Method and apparatus for minimizing restart pressure of a shutdown slurry pipeline. A bypass manifold arrangement is

provided in selected portions of a pipeline to enable plugs in the line formed by slumping of the slurry material solid phase

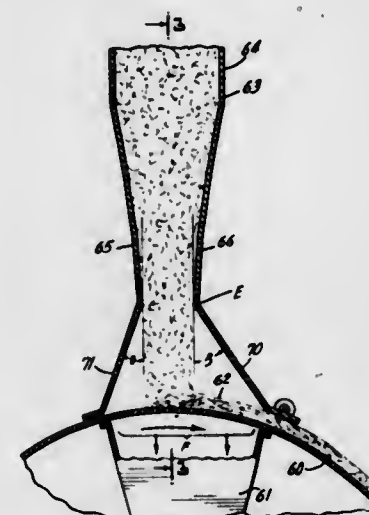


to be restarted in segments. In addition, such arrangement permits bypass of selected plugs in the line.

3,575,472
APPARATUS FOR COLLECTING WOODPULP FIBERS AS A UNIFORM LAYER
Charles A. Brewster, North Brunswick, and Charles H. Plummer, Princeton, N.J., assignors to Johnson & Johnson
Original application May 8, 1967, Ser. No. 636,742, now Patent No. 3,475,791. Divided and this application Mar. 28, 1969, Ser. No. 811,480
Int. Cl. B65g 53/40

U.S. Cl. 302-59

3 Claims

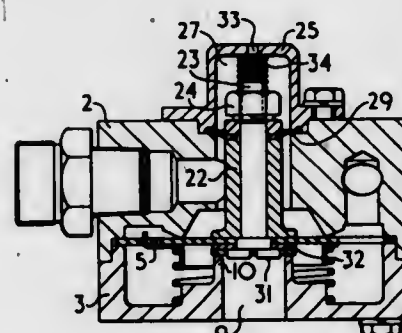


Apparatus for collecting woodpulp fibers as a uniform layer of loose fibrous material. The fibers are collected on a surface while removing the air from said fibers without disrupting the flow of said fibers or their formation on the collecting means.

3,575,473
VEHICLE ANTISKID BRAKING SYSTEMS
John Walter Davis, Balsall Common, Coventry, England, assignor to The Dunlop Company Limited, London, England
Filed Sept. 23, 1968, Ser. No. 761,681
Claims priority, application Great Britain, Sept. 30, 1967, 44610/67
Int. Cl. B60t 8/00, 15/00

U.S. Cl. 303-21

12 Claims



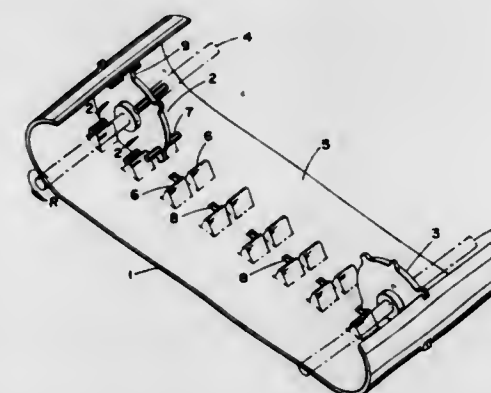
A valve having an annular inlet valve seat and an annular exhaust valve seat arranged concentrically and a flap valve

diaphragm which is engageable at its outer peripheral portion with the inlet seat and at its central portion with the exhaust seat and which can flex to uncover either the inlet seat or the exhaust seat, a stem being secured to the flap valve diaphragm and to a second diaphragm and being arranged to balance the pressures acting on the flap valve diaphragm, of which the following is a specification.

3,575,474
POSITIVE DRIVE SYSTEM FOR AN ENDLESS TRACK
Paul E. Russ, Sr., Englewood, Colo., assignor to The Gates Rubber Company, Denver, Colo.
Filed June 3, 1968, Ser. No. 733,865
Int. Cl. B62d 55/12

U.S. Cl. 305-35EB

12 Claims

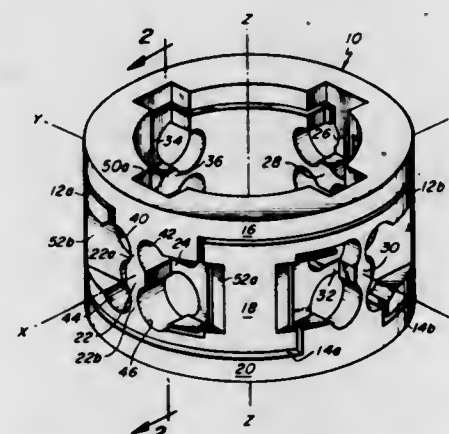


A lug and sprocket, positive drive system for a flexible and endless track. An antifouling drive and idler wheel for a positive drive system for use in mud, snow or the like.

3,575,475
FLEXURE JOINT
Donald R. Boerner, Wayne, N.J., assignor to Singer-General Precision, Inc., Little Falls, N.J.
Filed June 3, 1969, Ser. No. 829,958
Int. Cl. F16c 11/12

U.S. Cl. 308-2

4 Claims



A flexure joint in which at least one pair of slots extend through the wall of a unitary hollow cylindrical member, the ends of one slot of each pair terminating a predetermined circumferential distance from the corresponding ends of the other slot of the same pair to form at least two flexure portions between the corresponding ends. Each flexure portion is formed by two flexure leaves, the longitudinal axes of which extend at an angle to each other.

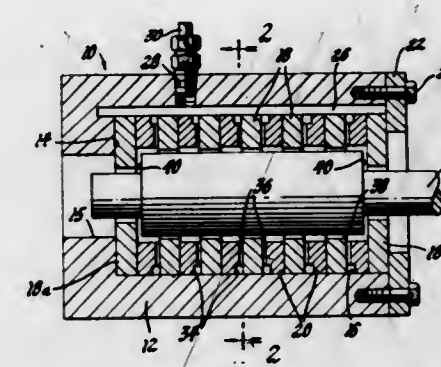
3,575,476
GAS BEARING
Frederick W. Ortman, Milan, Ohio, assignor to General Motors Corporation, Detroit, Mich.
Filed Oct. 14, 1968, Ser. No. 767,309
Int. Cl. F16c 17/16

U.S. Cl. 308-9

5 Claims

An externally pressurized gas bearing in which the stationary bearing surface is made up of a plurality of stacked

washers. A set of alternate relatively soft washers have one face grooved to provide manifolding and radial supply passages from the supply plenum to the hydrostatic gas bearing layer. The washers in the other alternate set are plain, of

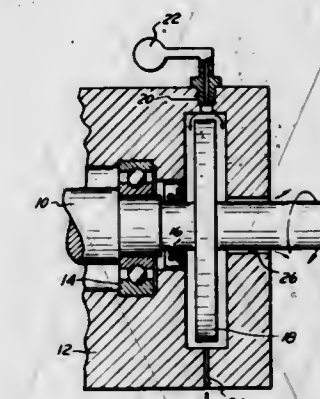


a relatively harder material and have smaller internal diameters to provide a plain bearing surface should the external pressure gas source suddenly fail. The design facilitates a family of fixed diameter bearings in which the length is tailored to meet the needs of various load carrying capacities.

3,575,477
SEAL
Edward M. Newsome, 25700 D'Hondt Court, Anchorville, Mich. 48043
Filed Oct. 23, 1969, Ser. No. 868,714
Int. Cl. F16j 15/40

U.S. Cl. 308-36.3

2 Claims



A large slinger disc is provided on a rotating shaft between a bearing and the point where the shaft emerges from the housing. A pressurized mist of oil is supplied to a chamber around the disc, and this oil flow is divided by the disc, the inner branch maintaining a wiper seal moist, and the outer branch continuously flowing out of the housing through a clearance gap surrounding the shaft.

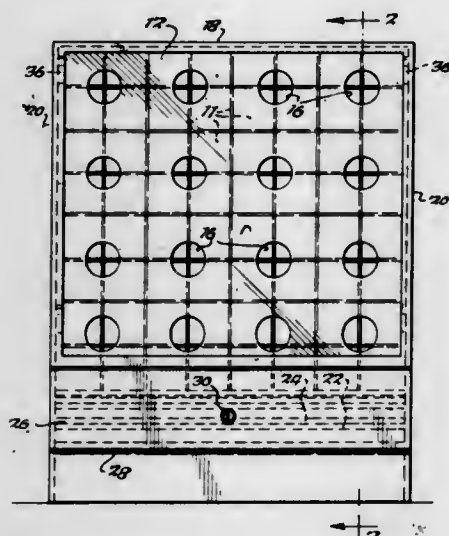
3,575,478
THEFTPROOF DISPLAY CABINET
Frank E. Szobski, 4808 Transit Road, Buffalo, N.Y., and Leonard Silver, 1790 Main St., Buffalo, N.Y.
Filed July 18, 1969, Ser. No. 842,952
Int. Cl. A47f 3/00

U.S. Cl. 312-117

11 Claims

The disclosure in this application is of a cabinet for articles such as cartridge tapes which includes a series of shelves or compartments on which the cartridge tapes are displayed and a transparent wall in front of said compartments and which has holes therein of a size to permit a customer's hand to pass through the same, the front wall being disposed at a distance from said compartment to permit a hand to pass through such holes and grasp and inspect a cartridge tape, the holes being too small to permit a cartridge tape to be passed through the same, and the purchaser, after examining

the cartridge tape may replace the same on a shelf, or if he drawers. In addition, automatic release of members con- wishes to purchase it, to drop it to the bottom of the display nected to a latching bar for purposes of loading trays in a



rack from where it may be removed by a sales person without removing said transparent front wall.

3,575,479

MOVABLE STORAGE-UNIT ASSEMBLIES

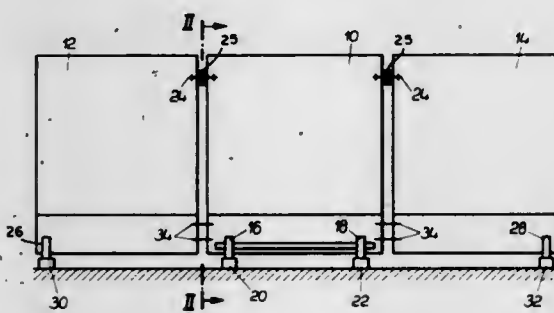
Rudi Kombuchen, Dusseldorf, Germany, assignor to Acrow (Automation) Limited, London, England
Filed Mar. 25, 1969, Ser. No. 810,308

Claims priority, application Germany, Apr. 6, 1968,

P 17 78 213.7
Int. Cl. A47b 53/00

U.S. Cl. 312-200

6 Claims



This invention relates to the combination of a plastic-wood fishing console to be used particularly on small boats and yachts or the like. Said console having an area upon which fish may be washed and cleaned. Said console having a water supply, a cold storage area, and an area for storage of fishing tools and tackle.

3,575,482

SELF-ADJUSTING POSITIVE LOCKING CHASSIS LATCH

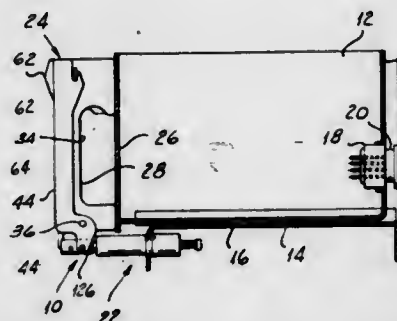
Edward MacMaster, New Milford; Werner Dellth, Ringwood; John L. Vander Sande, North Haledon, N.J., and Paul R. Gley, Hillsdale, N.Y., assignors to Rex Chainbelt Inc., Milwaukee, Wis.

Filed June 5, 1969, Ser. No. 830,678

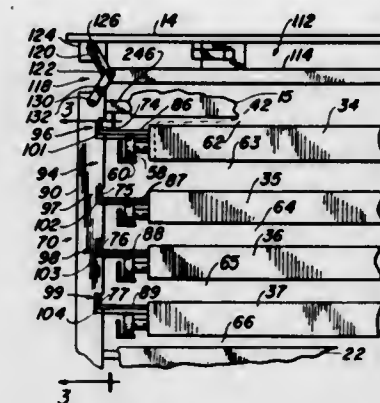
Int. Cl. A47b 95/02

U.S. Cl. 312-320

19 Claims



A self-adjusting positive locking chassis latch for securely retaining a chassis in housed position in a rack in which a handle assembly on the chassis comprises a primary lever



drawer can be achieved by releaseably connecting the latching bar to an interlock arrangement.

3,575,481

FISHING CONSOLE

Graydon A. Phlieger, Jr., 325 McLeod Drive, Cocoa, Fla.

Filed Jan. 7, 1970, Ser. No. 1,081

Int. Cl. A47b 77/06; A47b 9/00; A47b 83/00

U.S. Cl. 312-228

3 Claims

pivotaly supported for movement from a release position to a home position in the course of which movement a hook on the primary lever engages a spring-loaded keeper pin to move the chassis home with a controlled locking force and to displace the keeper pin sufficiently relative to the keeper housing to accommodate any interference between the chassis and the rack. A secondary lever is adapted to be moved from a release position to a locking position to move a locking element to a position at which it positively locks interengageable elements, carried respectively by the keeper pin and the keeper housing, in engaged position. A releasable catch arrangement adapted to hold the primary and secondary levers in their home and locking positions prevents the secondary lever from being latched unless the primary lever is already in its home position.

3,575,483

DROP FRONT CABINET HAVING TILTABLE BIN WITH ADJUSTABLE TENSIONING AND STOP DEVICE

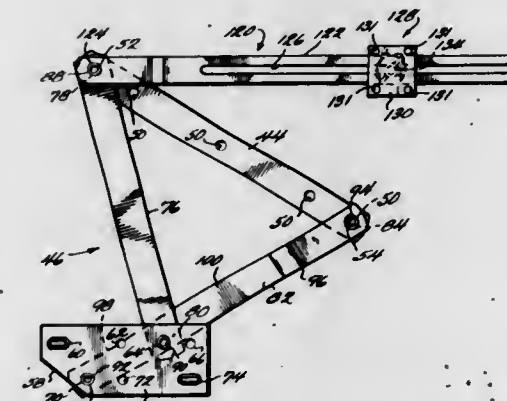
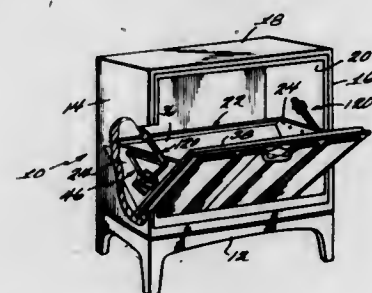
Warren C. Church, Hurt, and Calvin E. Brown, Altavista, Va., assignors to The Lane Company, Inc., Altavista, Va.

Filed Sept. 3, 1969, Ser. No. 854,929

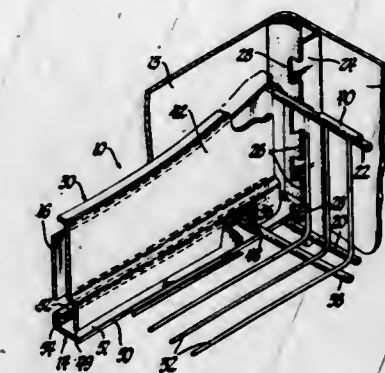
Int. Cl. A47b 88/00

U.S. Cl. 312-328

3 Claims



ment on a frame hung upon notched vertical brackets affixed to a rear wall of the refrigerator. The shelf lifts out of the



frame and may be separately hung from the same brackets as the frame.

3,575,485

HOLOGRAPHIC MAGNIFIER

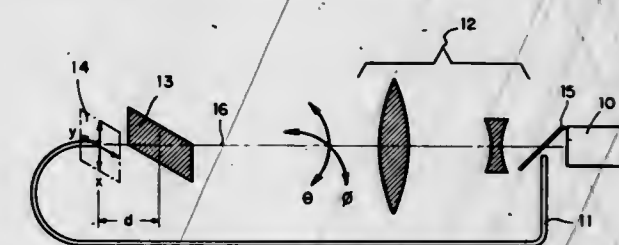
Lyman F. Van Buskirk, Ridgecrest, Calif., assignor to the United States of America as represented by the Secretary of the Navy

Filed Jan. 2, 1969, Ser. No. 789,094

Int. Cl. G02b 27/00; G02b 5/18

U.S. Cl. 350-3.5

2 Claims



A magnifier constructed of a hologram having the characteristic that when a monochromatic light source, such as a television cathode-ray tube, is placed at a specified distance from the hologram, the television image as viewed through the hologram is magnified.

3,575,486

SPECIMEN MOVING ATTACHMENT FOR A MICROSCOPE OR THE LIKE

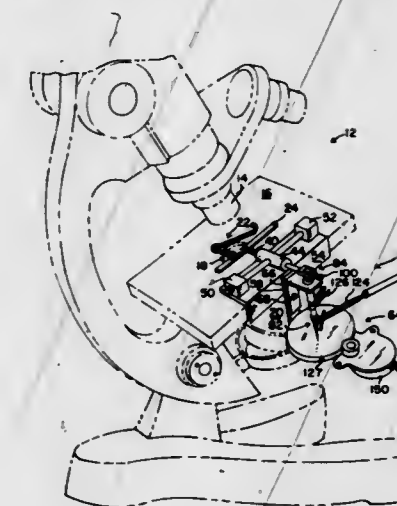
Victor M. de Posada, deceased, late of San Salvador, and Mary G. de Posada, Executrix, Calle Roma 192, Colonia Roma, San Salvador, El Salvador, Centro America

Filed Aug. 25, 1969, Ser. No. 852,996

Int. Cl. G02b 7/02

U.S. Cl. 350-90

14 Claims



An attachment readily mountable on the stage of conventional microscopes and having a specimen holder or press

A cabinet having a bin tiltably forwardly and downwardly from the front thereof, the front of at least part of the cabinet being the front of the bin. The bin is attached to the inside faces of two opposed sidewalls of the cabinet by two hinges each of which includes a first elongated hinge plate for preattachment to the bin, two elongated arms each having on end pivotally attached to an end of the first hinge plate, the two elongated arms crossing, scissor fashion intermediate their length and being pivotally secured at spaced points to a second hinge plate having at least two elongated holes therethrough and at least an additional circular hole therethrough for securement of the hinge to the cabinet which allows adjustment of the bin with respect to the cabinet during installation. The hinge assemblies further include devices for offering a desired resistance to tilting the bin, in order to prevent unexpectedly rapid tilting thereof and for limiting tilting of the bin.

3,575,484

CONVERTIBLE CANTILEVERED SHELF

Keith K. Kesling, Vandalla, Ohio, assignor to General Motors Corporation, Detroit, Mich.

Filed May 12, 1969, Ser. No. 823,648

Int. Cl. A47b 88/00

U.S. Cl. 312-330

1 Claim

In preferred form, a convertible sliding shelf for a domestic refrigerator which is normally supported for sliding move-

and an actuator assembly connected to the holder for moving the holder manually in any desired direction on the flat support surface of the stage or automatically by a drive assembly, including a motor and a cam assembly having a cam surface which guides movement of the specimen holder in a predetermined path on the surface of the stage.

3,575,487

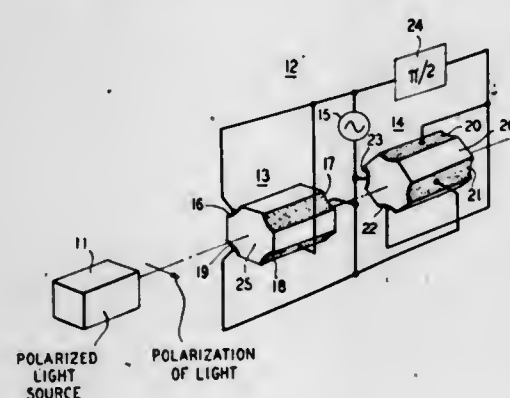
TWO-COORDINATE QUADRUPOLE OPTICAL DEFLECTOR

Edward A. Ohm, Holmdel, and Ralph F. Trambarulo, Red Bank, N.J., assignors to Bell Telephone Laboratories, Incorporated, Murray Hill, N.J.

Filed Sept. 17, 1969, Ser. No. 858,705
Int. Cl. G02f 3/00

U.S. Cl. 350-150

3 Claims



There is disclosed an arrangement of two stages of electro-optic quadrupole deflectors in which the 90° polarization rotator previously thought to be essential for deflection in orthogonal coordinates has been eliminated. Moreover, the number of optical parts for the two-stage deflection has been reduced from three to one in that both coordinates of deflection can be obtained in successive portions of one continuous electro-optic crystal. This deflector is useful for circular scan deflection and for multiple-pass light deflection, both of which are useful in optical time-division multiplex communication systems. The successive sets of quadrupole electrodes are symmetrically shaped with respect to the axis and are displaced 45° relative to one another about the propagation axis.

3,575,488

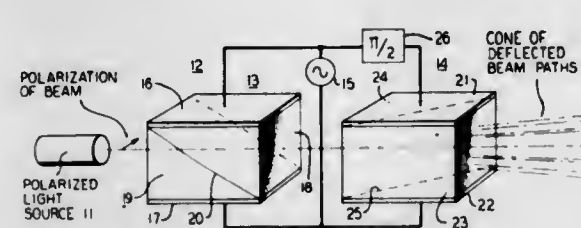
SIMPLIFIED TWO-COORDINATE ELECTRO-OPTIC PRISM DEFLECTOR

Edward A. Ohm, Holmdel, and Ralph F. Trambarulo, Red Bank, N.J., assignors to Bell Telephone Laboratories, Incorporated, Murray Hill, N.J.

Filed Sept. 17, 1969, Ser. No. 858,708
Int. Cl. G02f 3/00

U.S. Cl. 350-150

3 Claims



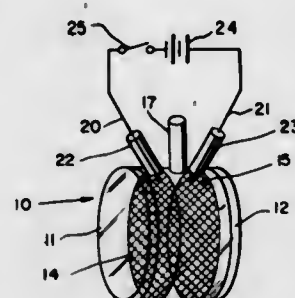
There is disclosed an arrangement of two-coordinate deflectors without the 90° polarization rotator between the stages that was previously thought to be essential. This reduction in the number of optical parts is achieved by mutually rotating only the inclined prism interfaces in the successive stages, while maintaining the crystalline axis orientations and electrode orientations the same in the two stages. The new deflector is easier to align and scatters less light than prior prism deflectors; and it will be useful in multiple-pass light deflectors and optical time-division multiplex communication systems.

3,575,489
LIQUID CELL OPTICAL SHUTTER
John R. Novak, Canoga Park, Calif., assignor to TRW Inc., Redondo Beach, Calif.

Filed Apr. 8, 1968, Ser. No. 719,422
Int. Cl. G02f 1/12

U.S. Cl. 350-160

1 Claim



An optical shutter consisting of an aromatic hydrocarbon in liquid form together with a solvent and an electrolyte disposed in a cell having a pair of electrodes. The aromatic hydrocarbon may, for example, be a polynuclear hydrocarbon and exhibits an electrochromic effect. Thus when an electric field is applied to the cell the hydrocarbon becomes ionized and absorbs light within the visible region while the neutral compound is transparent.

3,575,490

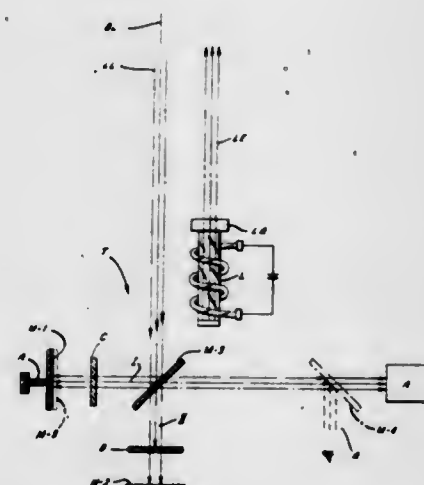
OPTICAL SYSTEM FOR RANGING BY LASERS AND THE LIKE

Elias Reisman, Orange, Calif., assignor to Philco-Ford Corporation, Philadelphia, Pa.

Filed Apr. 8, 1968, Ser. No. 719,618
Int. Cl. G02f 1/28

U.S. Cl. 356-160

10 Claims



A light splitting and recombining system, protecting observers and apparatus from destructive effects of laser flashes. Light from two paths is combined differentially to reduce, by interference, the light transmitted by the system. In one of the paths there is included a light-bleachable optical element whose transmissivity is a function of incident light energy. The system accepts low energy light of all wavelengths, but substantially stops high energy laser light.

3,575,491

DECREASING RESPONSE TIME OF LIQUID CRYSTALS

George H. Heilmeyer, Philadelphia, Pa., assignor to RCA Corporation

Filed Oct. 16, 1968, Ser. No. 768,145
Int. Cl. G02f 1/28

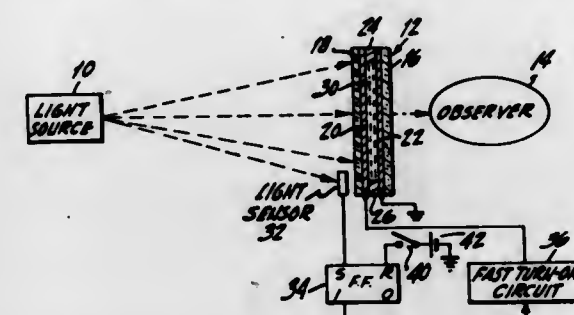
U.S. Cl. 350-160

5 Claims

The speed of response of a liquid crystal is increased without degrading the crystal, by applying the crystal an electric field which is of substantially greater value than the

minimum value of field required to achieve substantially maximum light scattering from the crystal and, after a short

substantially shorter than the usual natural decay time. The critical frequency range is related to the conductivity (which is temperature and voltage dependent) and dielectric constant of the liquid crystal and is precisely defined by equations in the detailed description below.



interval, reducing the magnitude of the applied field to a value close to said minimum value.

3,575,492

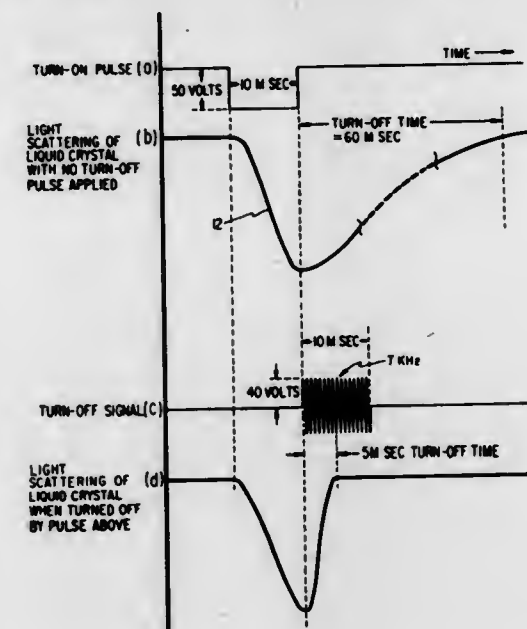
TURN-OFF METHOD AND CIRCUIT FOR LIQUID CRYSTAL DISPLAY ELEMENT

Edward Oskar Nester, Hightstown, and Bernard Joseph Lechner, Princeton, N.J., assignors to RCA Corporation

Filed July 10, 1969, Ser. No. 840,731
Int. Cl. G02f 1/28

U.S. Cl. 350-160

7 Claims



Nematic liquid crystal element of the type exhibiting dynamic scattering is erased by applying an alternating voltage to the element at a frequency in the range 2 to 20 kilohertz.

3,575,493

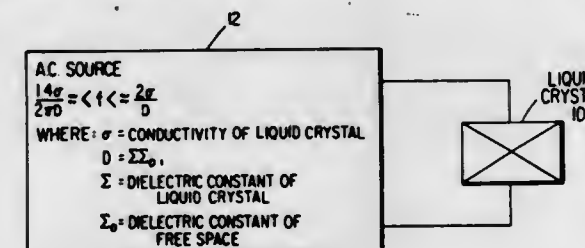
FAST SELF-QUENCHING OF DYNAMIC SCATTERING IN LIQUID CRYSTAL DEVICES

George Harry Heilmeyer, Philadelphia, Pa., assignor to RCA Corporation

Filed Aug. 5, 1969, Ser. No. 847,659
Int. Cl. G02f 1/28

U.S. Cl. 350-160

2 Claims



A liquid crystal element is operated within a critical frequency range such that upon removal of the exciting electric field, the dynamic scattering exhibited by the crystal decays within a matter of milliseconds—an interval which is

A lens is described having a high light gathering ability which may be employed in document reading and/or sorting machines. The lens includes five lens elements, a first biconvex lens element, a first meniscus lens element, a biconcave lens element, a second meniscus lens element and a second biconvex lens element.

3,575,496

REMOTELY CONTROLLED MIRROR

Samuel C. Pollock, Rochester, and Arthur J. Carpenter, Royal Oak, Mich., assignors to General Motors Corporation, Detroit, Mich.

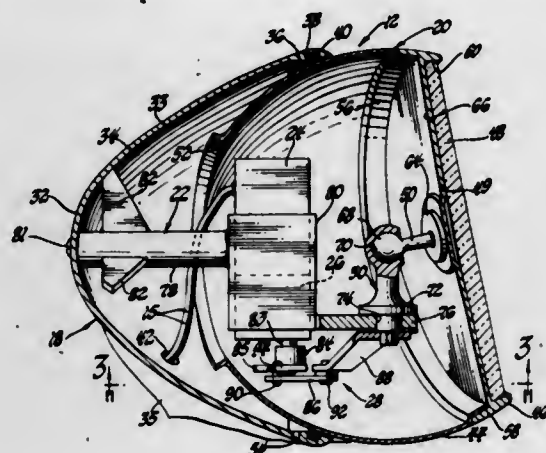
Filed May 28, 1968, Ser. No. 732,563
Int. Cl. G02b 1/08

U.S. Cl. 350-289

3 Claims

A remotely controlled rearview mirror for a motor vehicle characterized by having a mirror element that automatically scans a rearward field of vision. In a preferred form, the mir-

ror element is universally connected to a post member that is rotatable about a vertical axis. The post member is operatively connected to an electric motor and a drive mechanism that imparts a harmonic oscillation to the mirror element when



the motor is energized. The motor is controlled by an actuator switch located interior of the vehicle, and a control switch is operatively associated with the actuator switch and the drive mechanism for automatically deenergizing the motor a predetermined oscillatory period.

3,575,497

AUXILIARY EYE PROTECTION ASSEMBLY

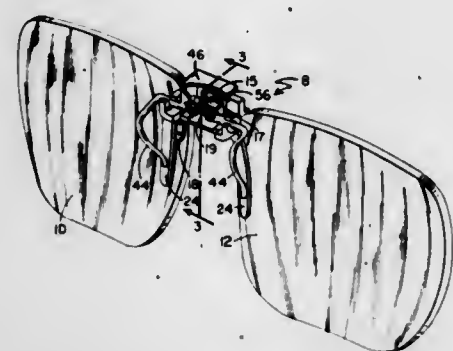
Conrad L. Leblanc, Leominster, Mass., assignor to Foster Grant Co., Inc., Leominster, Mass.

Filed Aug. 11, 1969, Ser. No. 848,938

Int. Cl. G02c 7/10, 9/04

U.S. Cl. 351-47

4 Claims



An auxiliary eye protection assembly adapted to clip onto a pair of spectacles and including a pair of lenses pivotally movable to a first position covering the spectacle lenses and a second uncovering position out of the line of vision of the wearer.

3,575,498

HIGH SPEED CAMERA

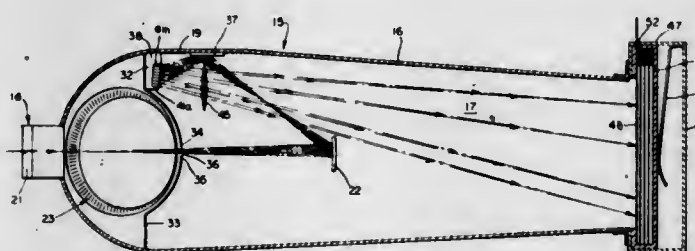
Jacob L. Bohn, Glenside, Pa., assignor to BNK Instrument Company, Philadelphia, Pa.

Filed Sept. 24, 1968, Ser. No. 761,924

Int. Cl. G03b 39/06

U.S. Cl. 352-84

18 Claims



A camera is provided, wherein light from an object to be photographed is transmitted through a lens system, in a path

of travel, the light then passing through a novel means for creating slight changes in direction of the path of light travel, whereby light may be reflected from any of a plurality of reflective elements onto a recording device such as photographic film.

3,575,499

PREVIEWING APPARATUS

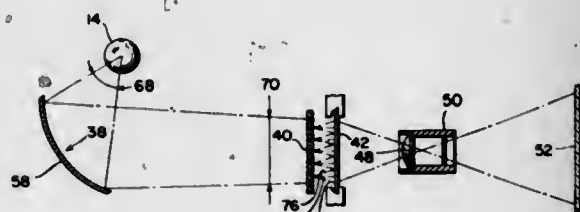
John P. Mahoney, Jr., Wheatridge, Colo., assignor to Honeywell Inc., Minneapolis, Minn.

Filed Sept. 13, 1968, Ser. No. 759,673

Int. Cl. G03b 21/28

U.S. Cl. 353-21

2 Claims



A light-transmitting apparatus for a projector to improve the resolution and color of a transparency being focused on a previewing screen wherein an inner spherical wall portion that terminates at its open end in four concave edge portions that form a square is employed as a reflector to reflect a cone of light rays from a light source into a square beam of light rays for passage through a light-diffusing plate and the transparency that are both of substantially the same size as the square beam so that only uniform rays of light that are carrying black, color, or clear portions of the transparency can be focused by means of an inexpensive lens and light stop onto the screen.

3,575,500

PIP MACHINE

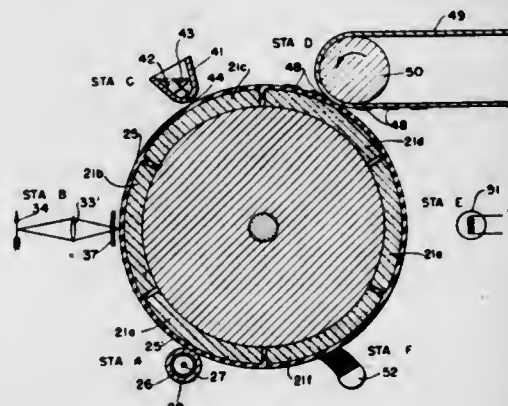
Herbert N. Schlein, Beverly, Mass., and Felix H. Brown, Okemos, Mich., assignors to Rahn Corporation

Continuation-in-part of application Ser. No. 445,910, Apr. 6, 1965, now abandoned. This application Mar. 16, 1966, Ser. No. 534,697

Int. Cl. G03g 5/00

U.S. Cl. 355-3

42 Claims



A copying machine whose operation utilizes the phenomenon known as "persistent internal polarization." An image is impressed by exposing to an electric field during or after light exposure a photoconductive insulative body constructed so as to be capable of recording a latent image by persistent internal polarization. Development may be done by toner, and the developed image may be transferred to paper, as in xerographic reproduction.

3,575,501

SYSTEM FOR HIGH SPEED RETRIEVAL OF INFORMATION AND CONVERSION THEREOF TO BOOK FORM

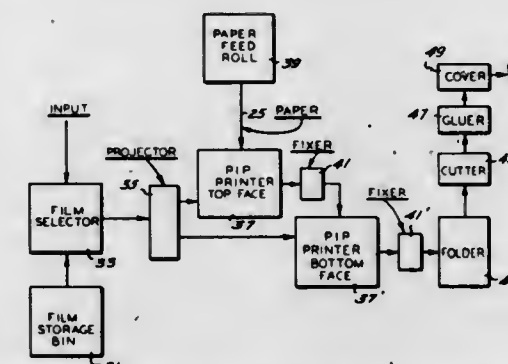
Nathan Rosenberg, 1912 N. Hayford, Lansing, Mich.

Filed June 16, 1967, Ser. No. 646,621

Int. Cl. G03g 15/00, 15/22

U.S. Cl. 355-3

2 Claims



A high speed information retrieval and transfer system including an addressable information storage unit together with means for addressably selecting units of information from the storage unit. A movable image receiving web is provided for continuous, sequential recording of selected information units received from a high speed information transfer module with the rate of information selection and rate of web movement being synchronized with the communication rate of the transfer module whereby the information is sequentially imprinted in visually perceptible form onto the web, the web subsequently being cut and bound into book form.

3,575,502

ELECTROPHOTOGRAPHIC COPYING ARRANGEMENT

Rudolf Eppe, Taufkirchen, Germany, assignor to AGFA - Gevaert AG, Leverkusen, Germany

Filed June 17, 1968, Ser. No. 737,484

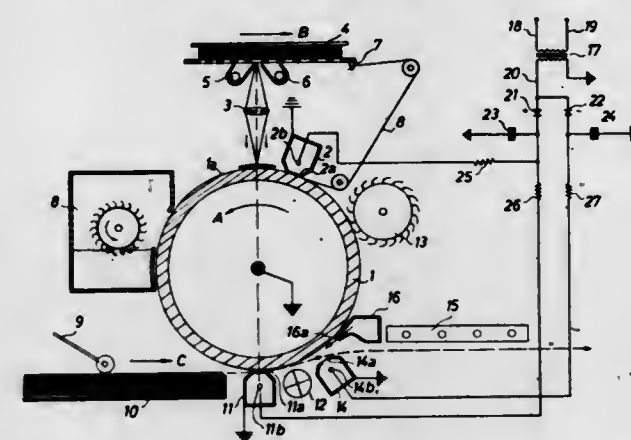
Claims priority, application Germany, June 15, 1968,

P 15 72 330.5

Int. Cl. G03g 15/16

U.S. Cl. 355-3

10 Claims



A first charging device is used for transferring a powder image from a transporting cylinder to a copy sheet by charging the copy sheet which causes an electrostatic force attracting the copy sheet to the transporting cylinder. A second charging device charges the copy sheet with a charge of opposite polarity for substantially neutralizing the first charge so that the copy sheet easily separates from the transporting cylinder.

3,575,503

COPYING MACHINE

John A. Van Auken, Miami Beach; Lionel B. Hoffman, Fort Lauderdale, and M. Gene Kaufman, South Miami, Fla., assignors to Copystatics Manufacturing Corp., Miami Lakes, Fla.

Filed Apr. 30, 1968, Ser. No. 725,390

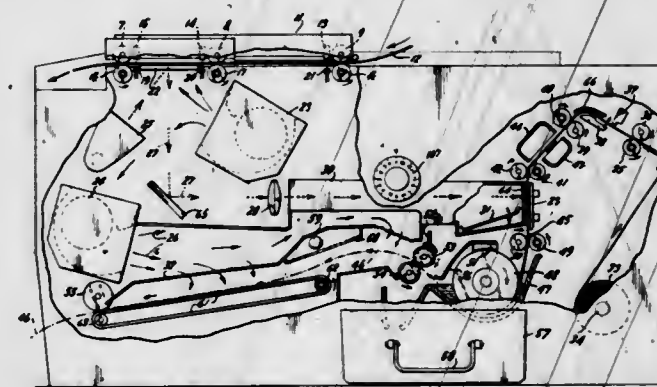
Int. Cl. G03g 15/00

U.S. Cl. 355-8

39 Claims

An electrostatic copying machine capable of very fast operation in a reciprocating multiple copy mode. The

original document to be copied is transported through the machine past the scanning window. After a first copy has been made the document itself is shuttled back past the scanning window until the leading edge of the original is at the front end of the scanning window. At this time another forward movement and scan take place, and another copy is made. This process is repeated for as many times as the number of copies required. The overall operation is fast for two reasons. First, the reverse feed rate of the original is greater than the forward feed rate since during reverse feed there is no scanning. Second, the copy paper feed begins dur-



ing the reverse travel of the original such that by the time the leading edge of the original reaches the front end of the scanning window, the leading edge of the copy paper reaches the front end of the exposure window and exposure can proceed without lost time. During forward feed the original is moved only until the trailing edge clears the scanning window. During reverse feed the original is moved only until the leading edge clears the scanning window. The use of a cam which can be clutched to the original drive system permits the copy feed to start at a time such that perfect registration is assured when the original forward feed begins, independent of the length of the original.

3,575,504

ELECTROSTATICALLY CONTROLLED MASKLESS VAPOR PLATING APPARATUS

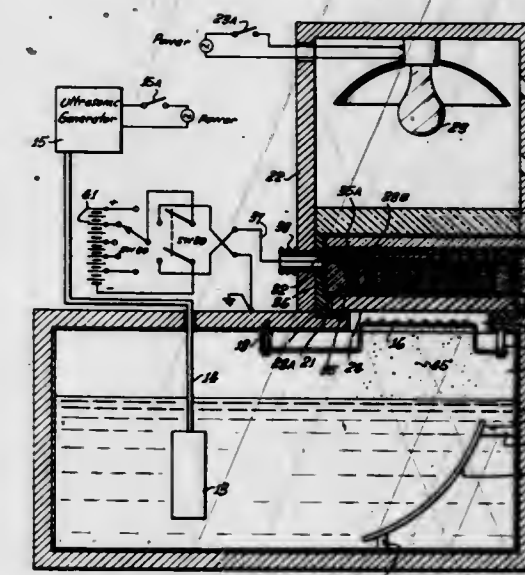
William Hotine, Albion, Calif., assignor to General Dynamics Corporation

Filed May 10, 1966, Ser. No. 548,888

Int. Cl. G03g 15/10

U.S. Cl. 355-10

4 Claims



An electrostatically controlled maskless vapor plating system for deposition of an electroless plating solution on an insulating substrate by means of a photoconductive matrix which is specifically fabricated to have the necessary proper-

ties for the generation of an electrostatic analogy of a visible pattern.

3,575,505

AUTOMATIC BIAS CONTROL

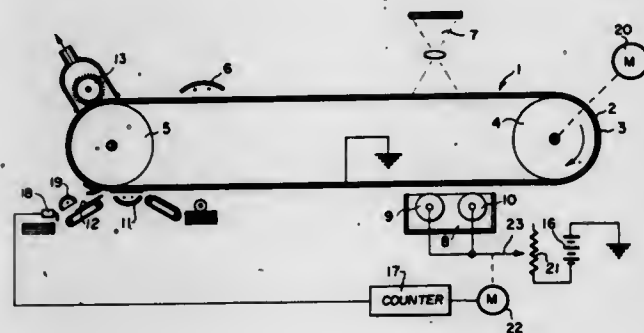
Charles D. Parmigiani, Rochester, N.Y., assignor to Eastman Kodak Company, Rochester, N.Y.

Filed July 30, 1968, Ser. No. 748,796

Int. Cl. G03g 13/08

U.S. Cl. 355-10

7 Claims



Gradual deterioration of performance of an electrophotographic machine is compensated for in an electrophotographic machine by a device which gradually raises bias on a development electrode according to use of the electrophotographic member in the machine. Apparatus is disclosed for counting the number of cycles of operation of the electrophotographic machine and changing the bias applied to magnetic brush in the apparatus in response to a predetermined number of the machine.

3,575,506

COPYING APPARATUS

Wilhelm Knechtel, Rodheim-Bieber, Germany, assignor to The Singer Company

Filed Oct. 21, 1968, Ser. No. 769,151

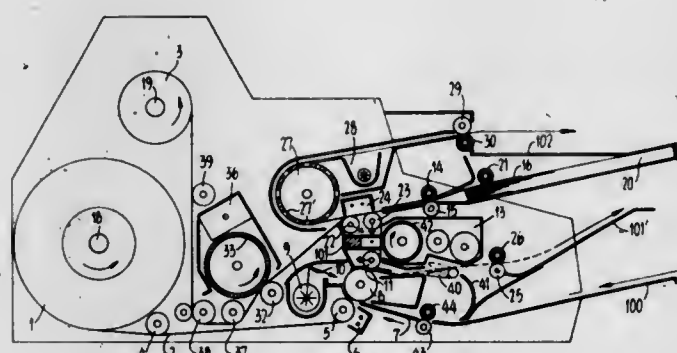
Claims priority, application Germany, Nov. 24, 1967,

P 15 97 834.4

Int. Cl. G03g 15/00

U.S. Cl. 355-16

4 Claims



The various components necessary to provide electrostatic reproductions of originals are arranged in a manner such that the apparatus is dimensionally more compact. The photoconductive web moves in a substantially U-shaped path from a supply reel through a charging station, an exposure station, developer station and an image transfer station to a takeup reel. Similarly, the original sheets are moved in a U-shaped path and into contact with the photoconductive web while the copy sheets are fed individually in a similar U-shaped path coincident with the photoconductive web for transfer of the developed image.

3,575,507 AUTOMATIC CAMERA AND LOOSE SHEET TURNER USING VACUUM CONVEYOR BELTS

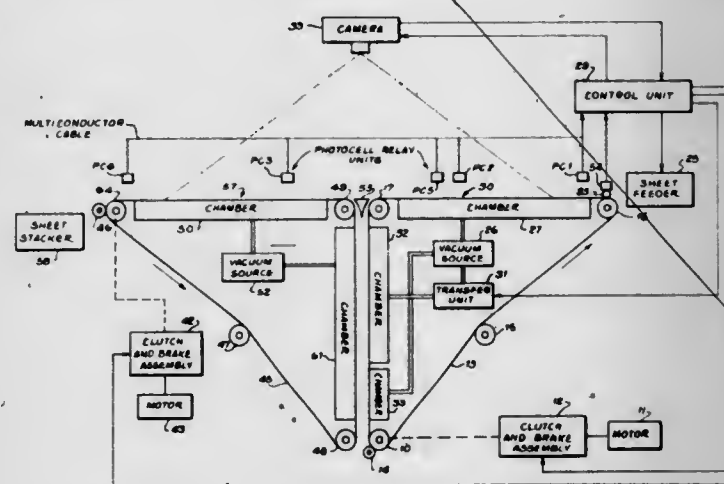
Robert J. Varson, Washington, D.C.; Philip O. Hackelton, Sultland, and Anthony A. Berlinsky, Silver Spring, Md., assignors to the United States of America as represented by the Secretary of Commerce

Filed May 9, 1969, Ser. No. 823,353

Int. Cl. G03b 27/32, 27/46

U.S. Cl. 355-23

12 Claims



An arrangement is described for photographing both sides of loose sheets arranged in a stack. A sheet is carried on a vacuum belt to a first area where side A is photographed. The sheet is then turned and transferred to another vacuum belt which moves the sheet to a second area while a second sheet is moved to the first area. Side B of the first sheet and side A of the second sheet are then photographed. Included are means for detecting a double sheet fed to the first belt or a sheet not fed completely off the second belt.

3,575,508

EXPOSURE TIME CONTROL ARRANGEMENT

Berthold Fergg; Wolfgang Zahn, and Walter Knapp, Munich, Germany, assignors to AGFA-Gevaert Aktiengesellschaft, Leverkusen, Germany

Filed Aug. 15, 1968, Ser. No. 752,896

Claims priority, application Germany, Sept. 16, 1967,

P 15 97 072.6

Int. Cl. G03b 27/04

U.S. Cl. 355-88

11 Claims

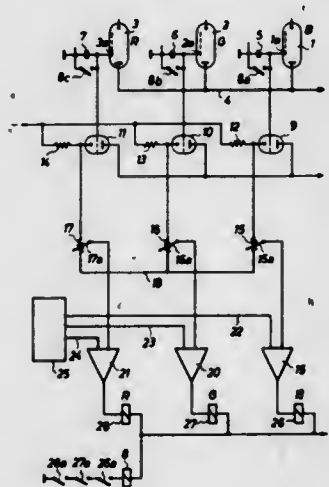


Photo sensitive material is illuminated through a color original. Three secondary electron multipliers furnish currents proportional to the light illuminating the photo sensitive material, one for each of three colors. Each current charges a capacitor. One terminal of each of the capacitors is connected to the corresponding secondary electron multiplier, and is also connected to a potentiometer. The other terminals of all three potentiometers are connected to a common point. The voltage at the wiper arm of each potentiometer

ter is compared to a corresponding reference voltage. Illumination in a given color is terminated when the voltage at the wiper arm and the corresponding reference voltage have a predetermined relationship.

3,575,509

SLIT EXPOSURE DEVICE

Shigeru Suzuki, Kanagawa-ken, Japan, assignor to Kabushiki Kaisha Ricoh, Tokyo, Japan

Filed Mar. 13, 1969, Ser. No. 806,844

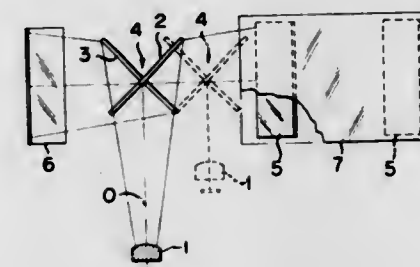
Claims priority, application Japan, Mar. 19, 1968,

43/81843

Int. Cl. G03b 27/70

U.S. Cl. 355-66

1 Claim



A slit exposure device comprising an original document holder and an exposure slit both of which are held stationary and a movable optical system for directing light from the original document through the exposure slit to a photosensitive recording surface which is moved in a plane parallel to the plane of the document holder. The optical system comprises a fixed reflecting mirror adjacent the exposure slit over which the photosensitive recording surface is moved in synchronism with a scanning mirror. Cross-shaped mirrors and a unitary lens-mirror move in synchronism with the scanning mirror but at a speed one-half that of the scanning mirror, the unitary lens-mirror moving both perpendicular to and in the same direction as that of the scanning mirror and cross-shaped mirrors.

3,575,510

IMAGE CORRECTION DEVICE

Tadao Kohashi, Yokohama, Japan, assignor to Matsushita Electric Industrial Co., Ltd., Osaka, Japan

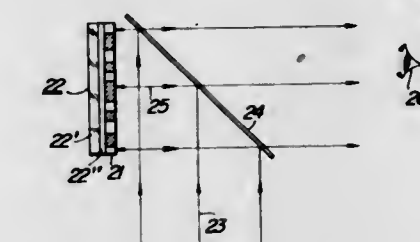
Filed Apr. 1, 1968, Ser. No. 717,725

Claims priority, application Japan, Apr. 17, 1967, 42/25031

Int. Cl. G03b 27/76

U.S. Cl. 355-67

5 Claims



A device for correcting an image formed on a photographic film, having a layer of a radiation-sensitive luminescent material disposed opposite to the photographic film. The luminescent layer acts as a source of light having an intensity distribution corresponding to the relative light transmissivity of the image on the film and the light from the light source is projected on the film thereby correcting the contrast of the original image.

3,575,511

EBERT MONOCHROMATOR WITH IMPROVED SLIT ILLUMINATION USING A CYLINDRICAL MIRROR

Robert John Francis, Cambridge, England, assignor to Pye Limited, Cambridgeshire, England

Filed Jan. 10, 1969, Ser. No. 790,393

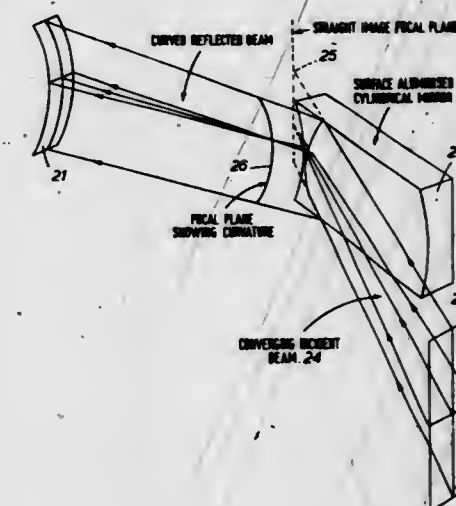
Claims priority, application Great Britain, Jan. 10, 1968,

1480

Int. Cl. G01j 3/12

U.S. Cl. 356-99

10 Claims



In a Czerny-Turner monochromator having a curved entrance slit for white light to pass to the mirror and thence the grating, a straight elongated light source is used with optical means, for example a convex lens and a cylindrical reflector, forming at the entrance slit, an image of the light source which is substantially congruent with the curved entrance slit.

3,575,512

OPTICAL APPARATUS FOR DETERMINING THE ORIENTATION OF AN OBJECT WITH RESPECT TO REFERENCE AXES

Jean Baboz, Saint-Mande Val De Marne, France, assignor to Societe D'Optique, Precision, Electronique Et. Mecanique Sopelem, Paris, France

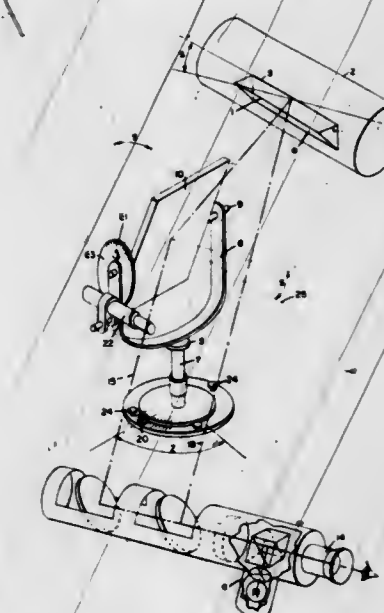
Filed Oct. 15, 1969, Ser. No. 866,472

Claims priority, application France, Oct. 29, 1968, 171839

Int. Cl. G01b 11/27

U.S. Cl. 356-138

9 Claims



two present invention is concerned with apparatus for determining the orientation of an object relative to a system of reference axes, said system comprising two plane reflecting surfaces which are disposed at 90° to each other, are fixed relative to the object and are arranged to receive an

image from a further plane reflecting surface which is pivotally mounted on a theodolite, a collimator whose optical axis is directed towards said further reflecting surface, a telescope whose optical axis is parallel to that of the collimator and which will receive the image of the collimator reticule after reflection at the three said reflecting surfaces when said further reflecting surface is in a plane perpendicular to the line of intersection of the planes containing said two reflecting surfaces, and means for determining the position of said further reflecting surface on the theodolite.

3,575,513

CORRELATOR TRACKER

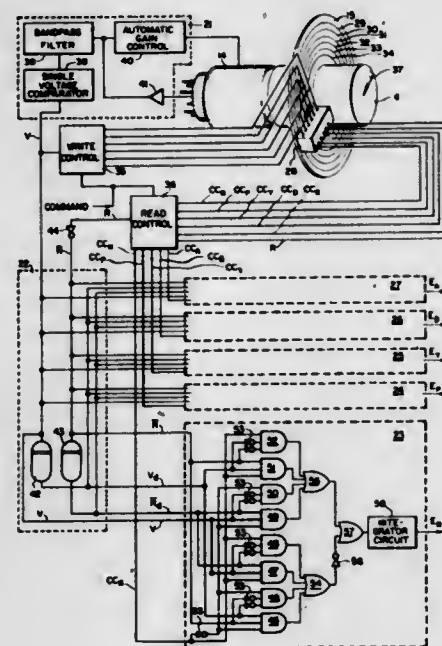
Raymond E. Gallagher, and Marvin H. Hammond, Jr.,
Columbus, Ohio, assignors to North American Rockwell
Corporation

Filed Dec. 18, 1968, Ser. No. 797,305

Int. Cl. G01b 11/26

U.S. Cl. 356-152

21 Claims



Apparatus and signal-processing methods are provided in a rotating slit-type correlator tracker to derive azimuth angle and depression angle error output signals that are normally in addition to roll angle, yaw angle, and pitch angle error output signals developed in known correlator tracker equipments; disclosed alternate forms of mechanization utilize square waveform and sinusoidal waveform correlation multiplicative coefficients that are a function of rotating slit scan position and that have a double frequency in comparison to the correlation multiplicative coefficient ideally utilized for developing yaw angle and pitch angle error output signals.

3,575,514

METHOD OF MEASURING TOE OF VEHICLE WHEELS WITH ENLARGED SCALE AND APPARATUS THEREFOR

James W. Baker, East Lansing, Mich., assignor to FMC Corporation, San Jose, Calif.

Filed Feb. 17, 1969, Ser. No. 799,819

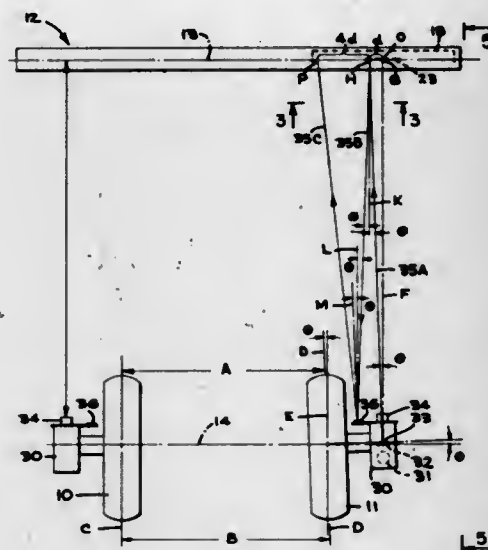
Int. Cl. G01b 11/26

U.S. Cl. 356-155

10 Claims

In measuring the toe of the front wheels of a vehicle, a projector is mounted on each wheel and aimed at a background unit in front of the vehicle. Two adjustable scales on the background unit are set so that a reference image projected from each projector hits the zero line of the scale for that wheel when the wheel is normal to the background unit. To determine the toe, the wheels are turned until one of the wheels is normal to the panel. The reference image is projected from the projector on the other wheel to a mirror on the background unit, and is reflected back to a mirror on the

projector, from which it is reflected back to the adjustable scale for that wheel on the background unit. The reading on



the scale, which is enlarged, gives the total toe of the vehicle wheels.

3,575,515

BEAM OF YARN SHEET MONITORING APPARATUS

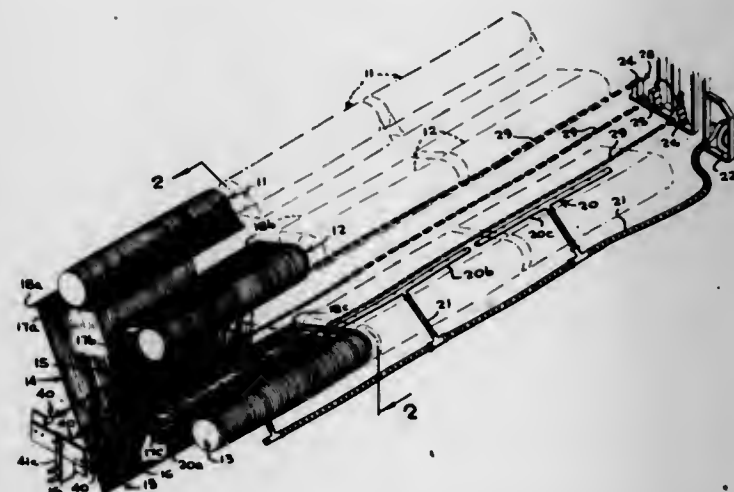
Raymond Baines Fertig, Ronceverte, W. Va., assignor to Appalachian Electronic Instruments, Inc., Ronceverte, W. Va.

Filed June 25, 1969, Ser. No. 836,311

Int. Cl. G01n 21/18, 21/30, 21/16

U.S. Cl. 356-199

10 Claims



An optical system for yarn inspecting apparatus to detect broken yarns in a yarn sheet, wherein an air-pressurized tube spans the yarn sheet and blows air in a direction to blow any broken yarn ends through a monitoring axis. The optical system includes a detector head adjacent one edge of the sheet having a light source and a phototransistor and a lens system for projecting light in a narrow cross section beam along the monitoring axis to a retroreflective target at the other edge of the sheet. A target lens covers the target, and the lens and lens system are adjustable to cause the beam to provide a spot of light on the lens and a reduced size light pattern on the target.

3,575,516

MECHANICAL PENCIL

Yukio Horie, Tokyo, Japan, assignor to Dai Nihon Bungu Kabushiki Kaisha, Tokyo, Japan, also trading as The Japan Stationery Co., Ltd.

Filed Feb. 10, 1969, Ser. No. 797,821

Claims priority, application Japan, Feb. 14, 1968, 43/10165

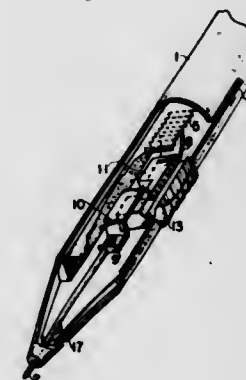
Int. Cl. B43k 21/18

U.S. Cl. 401-83

3 Claims

A mechanical pencil includes an outer casing and an inner casing. The inner casing comprises a lower plane on the same

level has a lead protruding passage and teeth-shaped continuous notches opposed to the lower plane and forming a space between them. An S-shaped plate spring is engaged at its rear end in the notches and holds a lead at its front end portion.



The spring is moved back and forth by means of a block loosely secured to it. An ear of the block projects outside of the outer casing so that the block may be moved by the thumb of the hand holding the mechanical pencil.

3,575,517

FILE CARD LOCKING MECHANISM

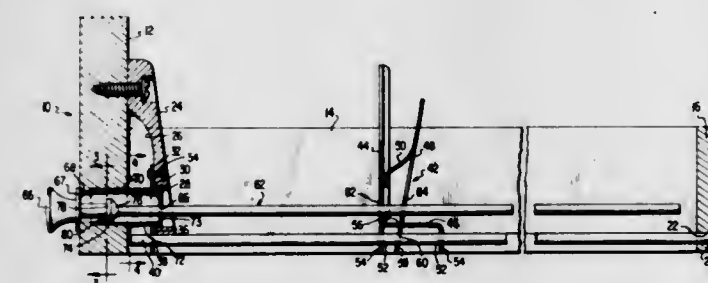
Robert S. Cartwright, Booneville, N.C., assignor to Stewart-Warner Corporation, Chicago, Ill.

Filed Oct. 21, 1968, Ser. No. 769,089

Int. Cl. B42f 13/14

U.S. Cl. 402-61

4 Claims



The file card drawer employs a cylindrical bushing carried by a faceplate which receives a knob and holding rod assembly. The knob is undercut and engages a lip in the bushing for holding the assembly in place. A bearing plate at the inner end of the bushing has a hole whose center line is below the centerline of the bushing to form a fulcrum which applies a downward pressure on the rod to lock the knob assembly in place.

3,575,518

TOOL PROBE

Horst Waldmann, St. Joseph, Mich., assignor to The Bendix Corporation

Filed Dec. 23, 1968, Ser. No. 786,098

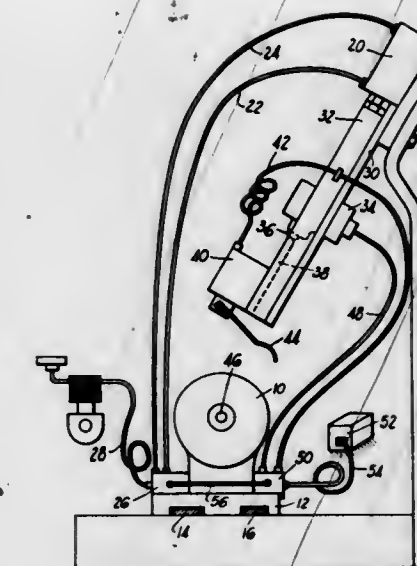
Int. Cl. B23b 49/00

U.S. Cl. 408-6

4 Claims

A detector for sensing the condition of a tool member to control the operation of a machine. A probe member operated by a motor is connected to a first electrical relay. When the probe member contacts the tool member, a second

relay is activated to close a switch controlling the operation of the machine. The operation of the machine is delayed until the first relay has operated the motor to move the probe away from the tool member.



3,575,519

DRILL GUIDE ASSEMBLY

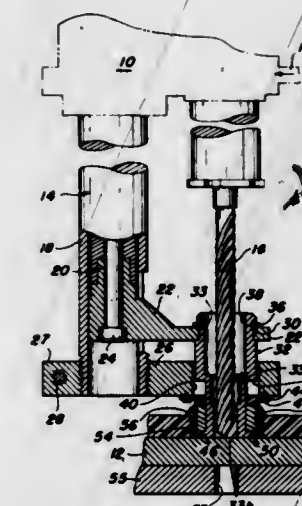
Russell L. Bruner, San Diego, and John B. Strohauer, La Mesa, Calif.

Filed June 2, 1969, Ser. No. 829,610

Int. Cl. B23b 49/02, 45/14

U.S. Cl. 408-97

4 Claims



A drill collet or guide assembly for portable drill tools that rigidly locks the drill tool to a jig bushing in an aligned position to ensure accurate and rapid drilling of a plurality of aligned bores in a workpiece.

3,575,520

ROTARY CUTTING TOOL AND AUXILIARY TOOL ELEMENT AND MEANS FOR INTERCONNECTING SAME

William Halpern, Harrison, N.Y.

Filed Apr. 15, 1969, Ser. No. 816,204

Int. Cl. B23b 51/08

U.S. Cl. 408-191

9 Claims

A tool is disclosed for drilling a hole, and as an adjunct thereto for performing an additional function such as chamfering or deburring. The tool is formed by a standard drill or reamer and an auxiliary tool element which may be adjusted to act when the drill or reamer has reached a predetermined depth in the workpiece. A special locking arrangement is

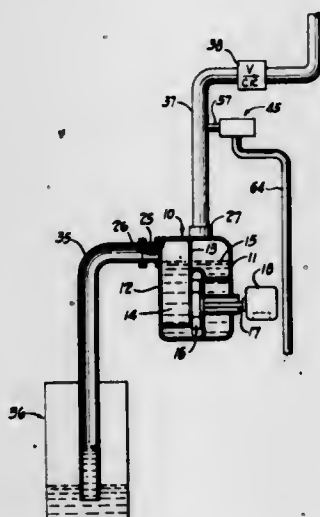
provided for securing the auxiliary tool in the adjusted position. The auxiliary tool also performs the very important additional function of supporting and guiding the drill through a drill jig bushing.



3,575,521 AIR RELEASE VALVE FOR SELF-PRIMING CENTRIFUGAL PUMP

Robert J. Porter, Mansfield, and Stanley B. McFarlin, Jeromesville, Ohio, assignors to The Gorman-Rupp Company

Filed Nov. 5, 1968, Ser. No. 773,549
Int. Cl. F04d 9/00; F16t 1/20; F16k 15/00
U.S. Cl. 415-27 12 Claims



An automatic air release valve is connected to the discharge side of a self-priming centrifugal pump for venting air from the pumping system during the priming cycle. The valve automatically closes upon completion of the priming cycle to prevent of liquid during the pumping cycle.

3,575,522 TURBINE COOLING

Samuel Melenchuk, Indianapolis, Ind., assignor to General Motors Corporation, Detroit, Mich.

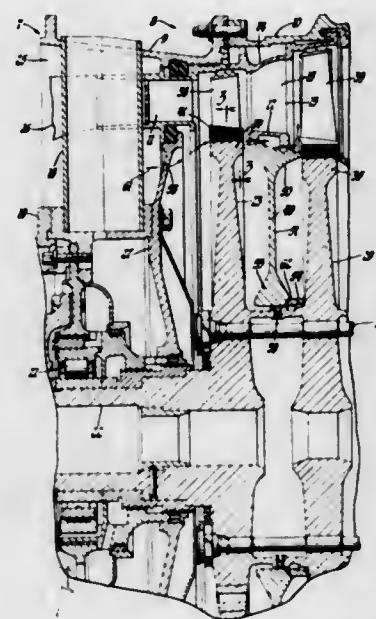
Filed Aug. 30, 1968, Ser. No. 756,673
Int. Cl. F01d 5/08

U.S. Cl. 415-112

6 Claims

An arrangement for cooling the rim of the first to second stage spacer of a multistage turbine of a gas turbine engine. Cooling air supplied to the forward face of the first stage wheel flows through blade slots below the blade roots and is discharged from the turbine wheel over the outer surface of the adjacent spacer through the clearance gap between it and

the inner shroud of the second stage nozzle. Some of the spaces under the blade bases are closed by inserted air seals



to regulate the quantity of cooling air and spacer temperature drop desired.

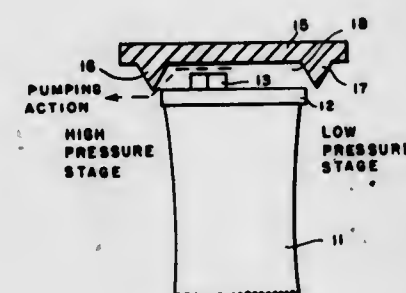
3,575,523 LABYRINTH SEAL FOR AXIAL FLOW FLUID MACHINES

Fred J. Gross, Jr., Glastonbury, Conn., assignor to the United States of America as represented by the Secretary of the Navy

Filed Dec. 5, 1968, Ser. No. 781,423
Int. Cl. F01d 5/20

U.S. Cl. 415-172

1 Claim



A sealing device in a turbine for preventing excessive leakage of motive fluid between a stator and the tips of rotor blades, the leakage being from a high-pressure side to a low-pressure side, including an airfoil provided on the outer periphery of each rotor blade with the airfoil being skewed to pump the leakage fluid back to the high-pressure side.

3,575,524 AIR FOIL FAN

Michael Adajian, Canton, Conn., assignor to Dynamics Corporation of America, New York, N.Y.

Filed Aug. 28, 1969, Ser. No. 853,783
Int. Cl. F04d 7/00

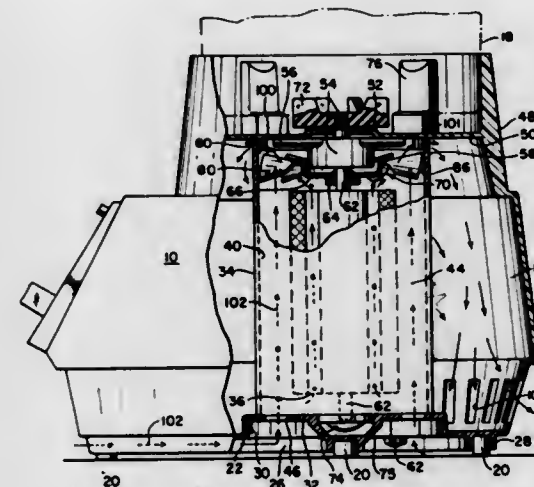
U.S. Cl. 415-213

9 Claims

A multibladed rotatable fan, for cooling motors and the like within a confined housing, having air foil blades designed to produce maximum air flow axially within the limited cross-

sectional area of the housing and discharge the air at an angle from the housing while maintaining a minimum noise

hydrodynamic torque during the pitch change. This is done by passing fluid comprising a gas or a liquid through the propeller blade and emitting it from the propeller blade on

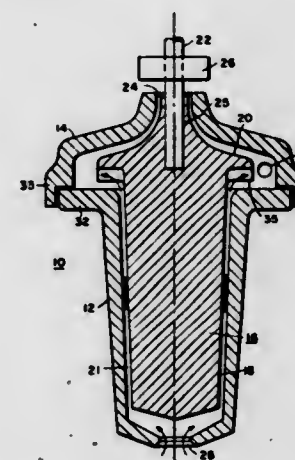


level and reduced turbulence at high speeds within the housing.

3,575,525 PUMP STRUCTURE WITH CONICAL SHAPED INLET PORTION

Leonard J. Fox, Lima, Ohio, and Paul E. Kueser, Pittsburgh, Pa., assignors to Westinghouse Electric Corporation, Pittsburgh, Pa.

Filed Nov. 18, 1968, Ser. No. 776,509
Int. Cl. F04d 13/12, 25/16, 25/06
U.S. Cl. 415-215 4 Claims



A pump, particularly suitable for pumping liquid molten metals, comprising an elongated, tapered or cone-shaped rotor disposed coaxially in a housing structure having an inner space with a similar shape, and having inlet and outlet ends, the radii of the rotor and/or the inner space of the housing increasing in the direction of the outlet end, the rotor and housing forming a space therebetween for directing a flow of liquid therethrough.

3,575,526 SHIP'S PROPELLER AND METHOD OF CHANGING THE PITCH THEREOF

Leonard Anthonie Van Gunsteren, Helvoirt, Netherlands, assignor to: LIPS, N.V. Drunen, Netherlands

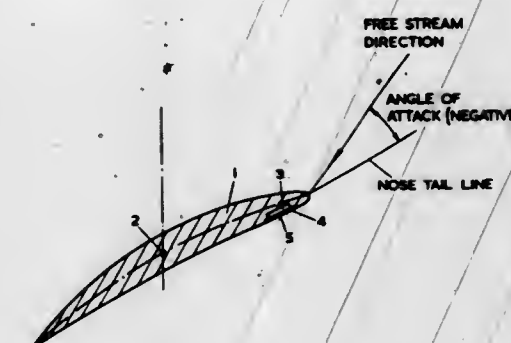
Filed Apr. 8, 1969, Ser. No. 814,256
Claims priority, application Great Britain, Apr. 8, 1968, 16,873

U.S. Cl. 416-1

Int. Cl. B63h 3/00

13 Claims

The forces necessary to change the pitch of a ship's propeller of variable pitch are reduced by reducing the



the suction side of the blade at a distance of 3 to 15 percent of the width of the suction side of the blade measured from the leading edge.

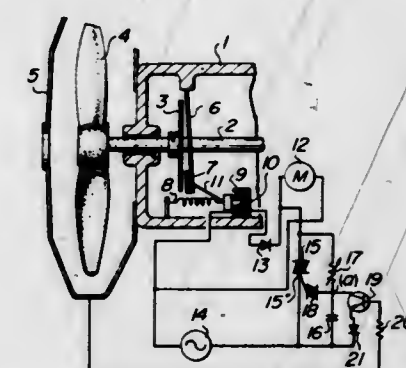
3,575,527 ELECTRIC FAN

Ichiro Watanabe, Neyagawa-shi, and Atsushi Sumitani, Nishinomiya-shi, Japan, assignors to Matsushita Seiko Co., Ltd., Osaka, Japan

Filed July 7, 1969, Ser. No. 839,244
Claims priority, application Japan, July 25, 1968, 43/53170
Int. Cl. F04d 25/08

U.S. Cl. 416-32

15 Claims



An electric fan with a safety device by which a rotating impeller is stopped at once when a hand gets close to the impeller.

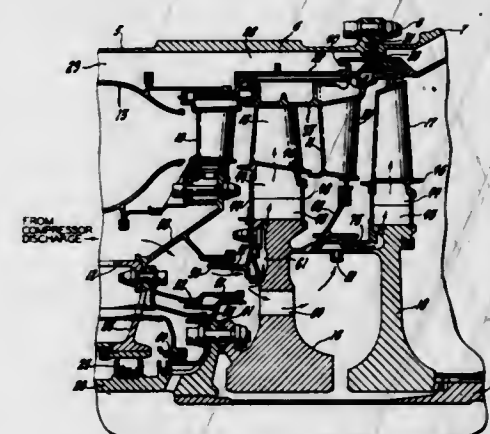
3,575,528 TURBINE ROTOR COOLING

Paul E. Beam, Jr., and Esten W. Spears, Jr., Indianapolis, Ind., assignors to General Motors Corporation, Detroit, Mich.

Filed Oct. 28, 1968, Ser. No. 770,920
Int. Cl. F01d 5/08

U.S. Cl. 416-39

11 Claims



Flow of cooling air through the rotor of a gas turbine is varied by a valve mounted in the rotor including a bimetal

ring which warps as a function of temperature to vary an annular valve opening. Centrifugal force also may affect the valve to a desired extent.

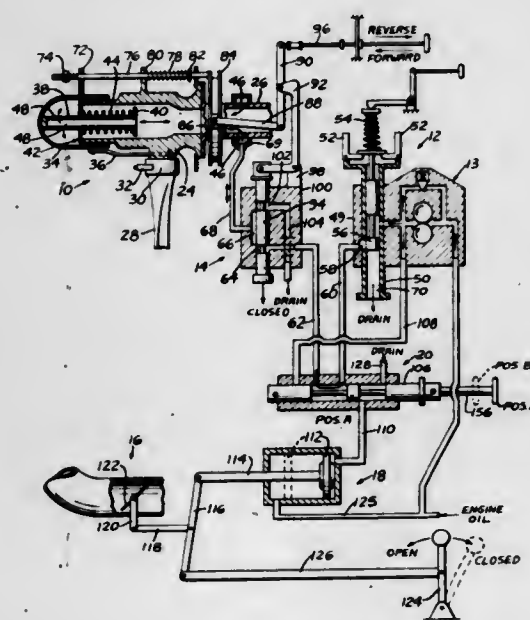
3,575,529

METHOD AND APPARATUS FOR OPERATING A PROPELLER AND DRIVING ENGINE FUEL VALVE
David Bierman, Piqua, Ohio, assignor to Hartzell Propeller, Inc., Piqua, Ohio

Filed June 24, 1968, Ser. No. 739,306
Int. Cl. B13h 3/10; B64c 1/140

U.S. Cl. 416-27

14 Claims



A control system for a variable pitch propeller having a driving engine with a fuel throttle in which the pitch of the propeller is automatically controlled to maintain substantially constant engine speed while the throttle is manually adjusted during takeoff and cruising, and the throttle is automatically adjusted to maintain substantially constant engine speed while the pitch of the propeller is manually adjusted during landing and taxiing. A single control lever is provided for selectively making one or the other system of operation effective.

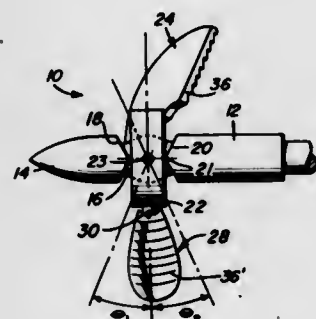
3,575,530

VARIABLE PITCH PROPELLER

Clifton W. Hall, Rte. 17, Knoxville, Tenn.
Filed Sept. 5, 1968, Ser. No. 757,670
Int. Cl. B63h 3/00

U.S. Cl. 416-131

8 Claims



A propeller having differently dimensioned integrally connected blades positioned on a drive shaft in non-symmetrical relationship. As the blades rotate with respect to the drive shaft, one of blades changes its blade angle of attack while the other remains at a constant blade angle of attack.

3,575,531

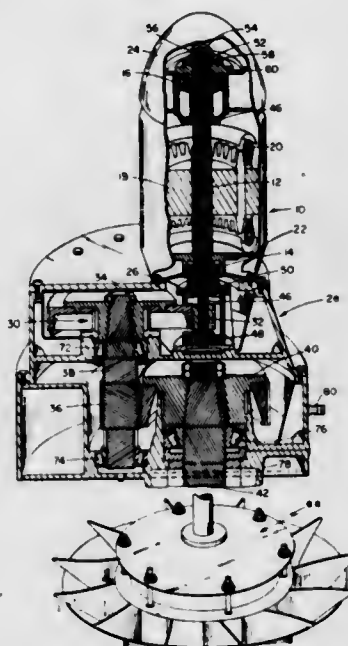
MOTOR AND GEAR SYSTEM

Ellot K. Buckingham, Springfield, Vt., assignor to Bird Machine Company, South Walpole, Mass.

Filed Dec. 11, 1968, Ser. No. 782,979
Int. Cl. B63h 21/28

U.S. Cl. 416-170

8 Claims



A high horsepower motor and gear system is provided in which the motor has a hollow drive shaft and the first stage drive gear has a long shaft extending through the hollow drive shaft and fixedly attached thereto at its far end, the latter shaft being sufficiently resilient to absorb positional errors which would otherwise result in high dynamic load exerted between the first gear pair. The system permits reduction in gear size which would otherwise be required, close coupling and ease of alignment between the two mentioned shafts and between the first stage drive and driven gears, being particularly useful as the drive for an aerator impeller.

3,575,532

GAS PUMP OF A LIQUID-RING TYPE

Kurt Mugele; Paul Schnapper, deceased, late of Erlangen, Germany and Lotte Schnapper, sole heir, Erlangen, Germany, assignors to Siemens Aktiengesellschaft, Berlin, Germany, said Mugele assignor

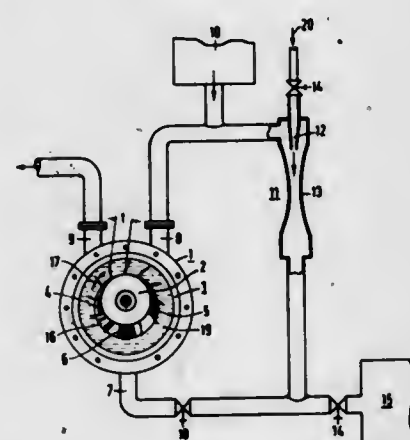
Filed Feb. 7, 1969, Ser. No. 798,274

Claims priority, application Germany, Mar. 15, 1968, 1,678,604

Int. Cl. F04f 19/00

U.S. Cl. 417-69

8 Claims



A gas pump of a liquid-ring type whose housing structure has a first suction opening and a pressure opening at the respective localities where the liquid ring, formed by centrifugal force during operation of the pump rotor, penetrates most deeply and least deeply into the intervane spaces of the rotor and is additionally provided with at least one further suction opening which is located between the first suction opening and the pressure opening. The additional suction

opening, relative to the direction of rotor rotation, has its leading end spaced from the lagging end of the first suction opening an amount equal to, or larger than, the vane division of the rotor. A suction duct is connected to the additional suction opening which is separate from the suction duct that communicates through the first suction opening with the interior of the pump housing.

bearing is located between the regulating valve and the calibrated orifice assembly for enabling inclination of the swashplate in accordance with the pressure at the outlet orifice to maintain a substantially constant driving torque for the pump.

3,575,533

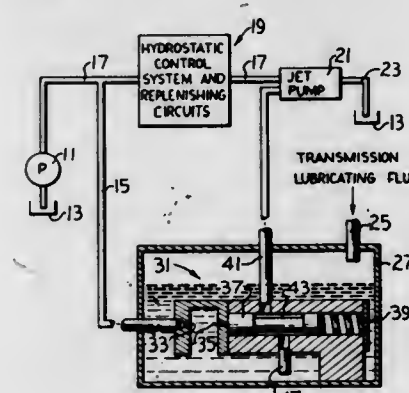
LIQUID LEVEL SENSING DEVICE

Thomas J. Bubula, Joliet, Ill., assignor to Caterpillar Tractor Co., Peoria, Ill.

Filed Mar. 20, 1969, Ser. No. 808,904
Int. Cl. F16k 21/18

U.S. Cl. 417-182.5

4 Claims



A liquid level sensing device wherein, when the liquid level drops below a predetermined amount, fluid at high velocity exerts a force against one end of a valve spool, causing movement of the spool against a biasing force. When the liquid level rises above the predetermined amount, the high velocity fluid is dissipated within the liquid by friction.

3,575,534

CONSTANT TORQUE HYDRAULIC PUMP

Gerard Leduc, 84 bis, rue d'Alsace, Saint-Die, France

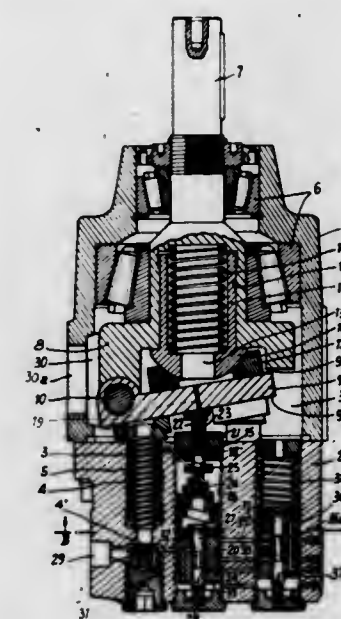
Filed Feb. 5, 1969, Ser. No. 796,795

Claims priority, application France, Feb. 7, 1968, 138,941

Int. Cl. F01b 3/00, 13/04; F04b 49/00

U.S. Cl. 417-218

9 Claims



A constant torque hydraulic pump having a swashplate of variable inclination pivotally mounted on a support and rotatable about a predetermined axis. The hydraulic control piston is mounted within the support for modifying the inclination of the swashplate, and a regulating valve is in fluid communication with an outlet orifice of the pump and is coaxially located with respect to the axis. A calibrated orifice assembly is located adjacent to the swashplate, and a spring

A pair of multivaned impellers are rotatably mounted interengaged longitudinally intermediate an inlet and outlet of a main fluid chamber, the impellers during rotation passing fluid in a bifurcated flow path between said vanes transversely outwardly along said impellers and longitudinally along transversely spaced sides of said main fluid chamber. An additive fluid chamber is also formed by the housing spaced from the main fluid chamber, said additive fluid chamber having similarly mounted impellers therein which are axially aligned with the impellers of the main fluid chamber and secured rotatably by said main fluid chamber impellers. The outlet of the additive fluid chamber is connected in fluid communication with a diffuser in the main fluid chamber, said diffuser being positioned midway of said impellers in the main fluid chamber extending axially elongated therealong at the chamber inlet side thereof. Furthermore, the diffuser has outlets transversely midway thereof directed toward the impellers and oppositely generally transversely extending arcuate surfaces closely adjacent each of said impellers extending transversely at least equal to the circumferential spacing of the vanes on the impellers. The chamber inlet side of the diffuser is preferably formed with arcuate surfaces similar to the before-mentioned arcuate surfaces but projecting arcuately in reverse fashion directing fluid from said chamber inlet in said bifurcated flow path. Finally, a diffuser may be similarly positioned in the additive fluid chamber preferably being formed of similar exterior shape, and the impellers of the additive fluid chamber are formed for passing fluid through said chamber of a determined proportionate volume less than the fluid passed through said main fluid chamber by the impellers thereof. Thus, additive fluid through the additive fluid chamber will be metered into the main fluid chamber for mixing with the main fluid flow in determined and exact proportion.

3,575,536

PUMP FOR BEVERAGE DISPENSER

William H. Jacobs, Chestnut Hill; William A. Azberger, Medfield, and Robert L. Norton, Norfolk, Mass., assignors to Jet Spray Cooler, Inc., Waltham, Mass.

Filed Feb. 7, 1969, Ser. No. 797,578

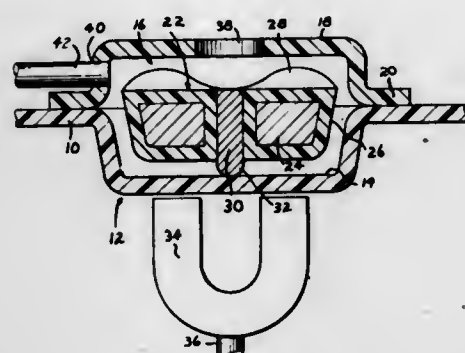
Int. Cl. F04d 13/02; H02k 5/10

U.S. Cl. 417-420

9 Claims

A pump assembly for beverage dispensers having a pump chamber within which an impeller is disposed free of any

shaft and bushing connections. A magnet embedded in the impeller cooperates with the driving magnet outside the



chamber to align the impeller and support it on its bearing for rotation.

3,575,537

SIDE HOUSING OF ROTARY PISTON ENGINE
Kenichi Yamamoto, Atsushi Nakazawa, and Mitsunori Utsumi, Hiroshima-ken, Japan, assignors to Toyo Kogyo Company Limited, Hiroshima-ken, Japan

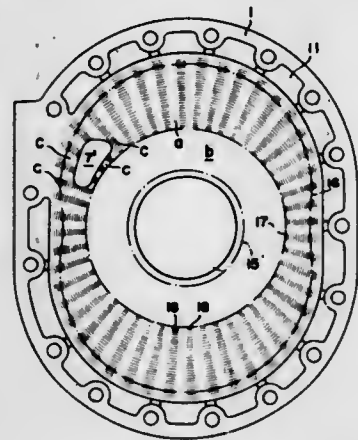
Filed May 14, 1969, Ser. No. 824,427

Claims priority, application Japan, June 6, 1968, 43/39162

Int. Cl. F01c 1/02, 1/42, 21/00

U.S. Cl. 418-60

5 Claims



A side housing for a rotary piston engine of trochoidal configuration having an inner surface exposed to the combustion gas and heat treated in striped pattern only in the restricted area located outwardly of an envelope of loci delineated by the oil sealing member mounted on the rotor means so as to alleviate the adverse effect due to heat treatment.

3,575,538

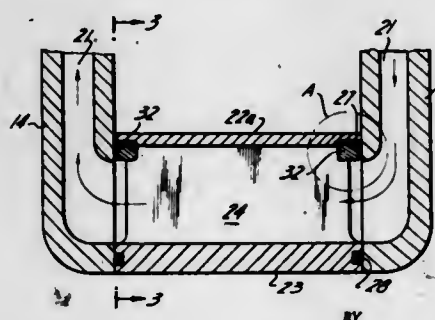
HOUSING SEALING MEANS FOR ROTARY ENGINES
Murray Berkowitz, Woodcliff Lake, and Charles Lombaerde, Ridgewood, N.J., assignors to Curtiss-Wright Corporation

Filed July 24, 1969, Ser. No. 844,272

Int. Cl. F01c 21/06; F03c 3/00; F04c 29/04

U.S. Cl. 418-83

6 Claims



A means of sealing an engine housing against coolant leakage, by positioning a gasket ring with a small retainer

ring lodged against a housing shoulder, thus obviating the former heavy wall thickness required for seating a gasket in a groove in the edge thereof, and thereby resulting in reduced fabrication costs and improved cooling by the use of thinner wall.

3,575,539

APPARATUS FOR SUPPRESSING VIBRATION IN A HELICAL-ROTOR AXIAL-FLOW COMPRESSOR SUPPLIED WITH SEALING WATER

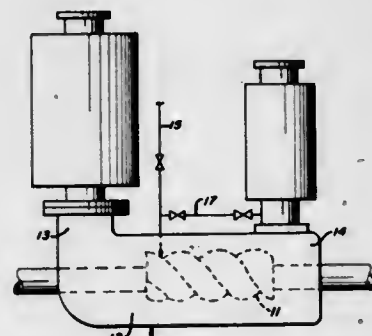
Dennis J. Hanick, Elizabeth, Pa., assignor to United States Steel Corporation

Filed Nov. 27, 1968, Ser. No. 779,580

Int. Cl. F04c 17/04

U.S. Cl. 418-99

2 Claims



A helical-rotor axial flow compressor has a sealing-water inlet extending through its casing. A water-supply pipe is connected to said inlet. A gas-supply pipe is tapped into said water-supply pipe and is connected to a source of gas under a pressure higher than that of the water in the water-supply pipe. This suppresses the vibration otherwise resulting from the stopping or shutting off of the water stream entering into the casing, by the passage of the rotor lands.

3,575,540

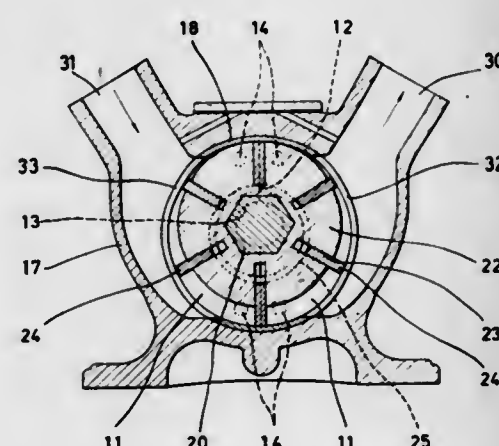
AIRTIGHT EQUIPMENT IN A ROTARY PUMP
Kazuo Satake, No. 77, 2-cho, Ohtori Minami-Machi, Sakai-shi, Japan

Filed May 15, 1969, Ser. No. 824,788

Int. Cl. F01c 19/08; F04c 27/00

U.S. Cl. 418-133

3 Claims



Means for improving the fluid tightness of a rotary pump. A bisected annular plate is provided between each end of the rotor and the casing through which the drive shaft extends, one-half of the plate being on the intake side of the casing and the other half being on the discharge side of the casing. The half of the plate on the intake side is drawn toward the rotor by the reduced pressure at the intake side, while the half of the plate on the discharge side is urged away from the rotor by the pressure.

3,575,541

OIL SEALING UNIT IN ROTARY PISTON ENGINE
Yoshitugu Hamada, Nagahama-Shi, Japan, assignor to Yanmar Diesel Engine Co., Ltd., Osaka, Japan

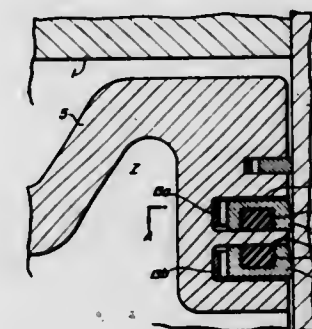
Filed Oct. 23, 1969, Ser. No. 868,849

Claims priority, application Japan, Dec. 11, 1968, 107513/68

Int. Cl. F01c 19/00, 1/02

U.S. Cl. 418-144

1 Claim



An annular sealing member and a wavy spring are mounted in an oil sealing unit mounting groove formed on each side face of a rotor. The annular sealing member has a recess or recesses formed in the contacting surface with the wavy spring for receiving a crest or crests of said wavy spring, whereby said annular sealing member is secured to said wavy spring.

3,575,542

FUEL CONTROL SYSTEM FOR A COOKING APPARATUS OR THE LIKE

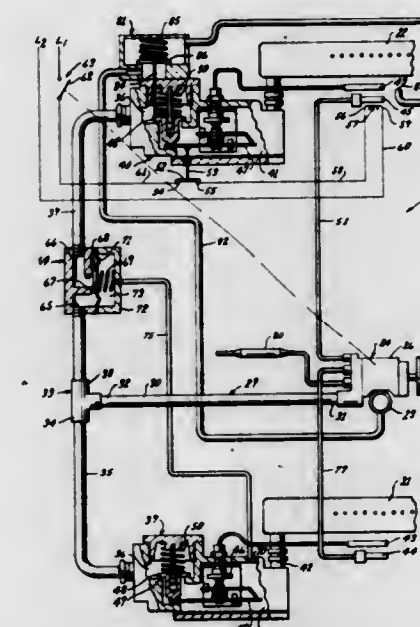
Charles D. Branson, Greensburg, and Francis S. Genbauffe, Irwin, Pa., assignors to Robertshaw Controls Company, Richmond, Va.

Filed Dec. 10, 1968, Ser. No. 782,580

Int. Cl. F23q 9/08

U.S. Cl. 431-58

17 Claims



This disclosure relates to a control system for a bake burner and a broil burner of a domestic oven or the like wherein a control device is adapted to interconnect a source of fuel to a conduit means leading to the bake burner and the broil burner, the conduit means having fluid pressure operated valve means therein intermediate the control device and one of the burners with the valve means being so constructed and arranged that the same will direct the fuel issuing thereto from the control device to that one burner only when the selector means of the control device is set for operation of that one burner. The pressure-operated valve means is caused to be moved to its closed position by the pressure of the flow of fuel to the other burner when the selector means of the control device is set for operation of that one burner.

3,575,543

GAS BURNER

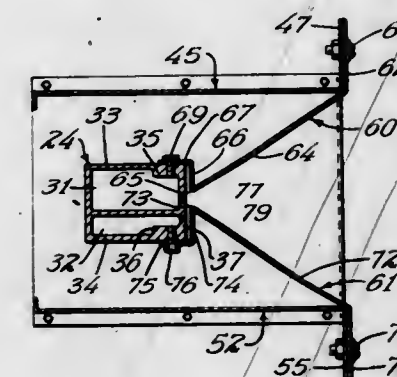
Richard Weatherston, St. Paul, Minn., assignor to Weather-Rite, Inc., County of Ramsey, Minn.

Filed Nov. 29, 1968, Ser. No. 779,671

Int. Cl. F23q 9/00

U.S. Cl. 431-285

10 Claims



A gas burner is provided formed of a hollow elongated metal extrusion. The extrusion includes an internal partition dividing the interior into a pair of manifolds. The extrusion is preferably rectangular in cross section and longitudinally spaced apertures in one wall of the extrusion communicate with each of the two manifolds. The ends of the extrusion are closed, and gas under pressure may be connected to each manifold to discharge gas through said apertures. One row of apertures preferably is supplied with lower pressure gas, to act as low flame pilot lights for the gas intermittently directed to the other manifold.

3,575,544

ELECTRIC ARC HEATING AND MELTING

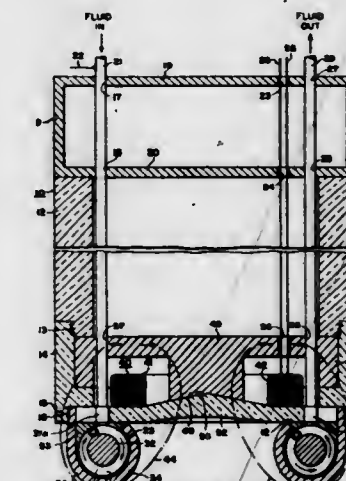
Armin M. Bruning, Pittsburgh, Pa., assignor to Westinghouse Electric Corporation, Pittsburgh, Pa.

Original application Oct. 29, 1964, Ser. No. 407,332. Divided and this application Oct. 14, 1969, Ser. No. 866,275

Int. Cl. H05b 7/08

U.S. Cl. 13-9

7 Claims



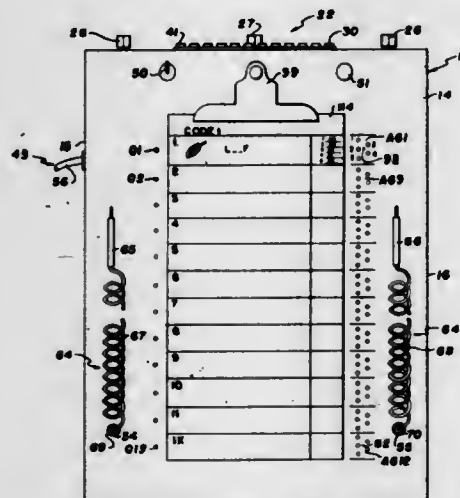
A nonconsumable electrode having a supporting structure for a fluid cooled tip forming an arcing surface, having a magnetic field coil therein for setting up a magnetic field at the arcing surface which exerts a force on the arc which causes the arc to move substantially continuously over the arcing surface while heat flux is removed from the arcing surface at a sufficiently high rate to prevent excessive deterioration of the arcing surface as a result of arc action, is utilized in gas heating and metal heating and melting, the arc taking place to a melt composed at least partially of conductive material, to another electrode, or three arcs may be simultaneously produced by three phase alternating current operation.

3,575,545

EDUCATIONAL APPARATUS

Archibald Millar, 2301 Victor St., Victoria, B. C., Canada
 Filed Nov. 25, 1968, Ser. No. 778,384
 Int. Cl. G09b 7/06

U.S. Cl. 35-9



Apparatus for checking the answers to problems on a test paper. A panel on the apparatus has question and answer terminals corresponding to the problems and solutions. Student-operated conductor means are used to complete electric circuits between the question and answer terminals whereby to energize signalling means which indicate whether or not a question has been answered correctly. Programming circuits and switch means enable a teacher to program the apparatus according to the type of test being given and his selected arrangement of the correct answers to the problems on the test paper.

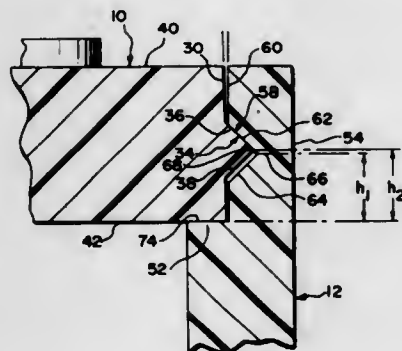
3,575,546

HEADER AND SHELL ENCASEMENT FOR ELECTRONIC COMPONENTS AND THE LIKE

James P. Liautaud, 141 Grissom Lane, Hoffman Estates, Ill.
 Filed Feb. 24, 1970, Ser. No. 13,287
 Int. Cl. H05k 5/00

U.S. Cl. 174-50.52

2 Claims



Electronic components are mounted to the back side of a plastic header having electrical connectors passing therethrough. The resulting header is snapped into place in the mouth of a closely fitting plastic shell to complete the enclosure of the electronic components. The header and shell are manufactured from strong, resilient plastic. The header-shell combination includes detent means positioned along one pair of opposite edges which continuously exert a camming action which compresses a peripheral inner face of the header against an opposing shoulder on the shell to provide a compression seal. Once snapped, however, it is extremely difficult to remove the header from the shell.

In a preferred method utilizing the novel header and shell, the shell is initially partially filled with a hardenable liquid. When the header and components are snapped in place, the components are embedded in the hardenable liquid. The resulting assembly is immediately ready for shipment, storage, or use, without curing delay, or further special handling.

3,575,547

INSULATION IMPREGNATED WITH A POLYURETHANE RENDERED FLAMEPROOF WITH A HALOGENATED BISPHENOL AND A CONDUCTOR INSULATED WITH SUCH INSULATION

David E. Cordier, Hamden, Conn.; Victor V. D'Anicchio, Kalamazoo, Mich., and Richard A. Kolakowski, North Branford, Conn., assignors to The Upjohn Company, Kalamazoo, Mich.
 Original application Jan. 10, 1964, Ser. No. 336,889, now Patent No. 3,375,224. Divided and this application Nov. 3, 1967, Ser. No. 680,331
 Int. Cl. H01b 3/30, 3/42

U.S. Cl. 174-121

2 Claims

Fabric and fabric-sheathed insulated conductors having a tough, flexible polyurethane coating are obtained by impregnating the fabric or fabric-sheathed insulated conductor with a mixture in an inert solvent of (a) a polymethylene polyisocyanate capped with phenol or alkyl (C_1 - n) phenol and (b) an hydroxy terminated poly(ethylene/propylene) adipate of EW. 300 to 1200. The impregnated material is cured by heating at 300° F. to 500° F.

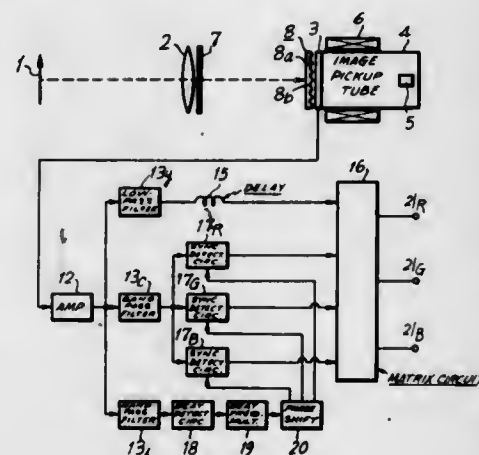
3,575,548

COLOR VIDEO SIGNAL GENERATING APPARATUS

Hiroichi Kurokawa, Kanagawa-ken, Japan, assignor to Sony Corporation, Tokyo, Japan
 Filed Apr. 7, 1969, Ser. No. 813,937
 Int. Cl. H04n 9/06

U.S. Cl. 178-5.4st

7 Claims



In a color video signal generating apparatus in which an image of the object to be televised is projected through a color filter onto the photoelectric conversion layer of an image pickup tube and is divided into color component stripes which are successively scanned so that the respective light intensities of the stripes appear as corresponding successive color component signals in the electrical output of the tube, there are also formed on the photoelectric conversion layer two sets of bright and dark stripes having respective spatial frequencies that are different from each other and also each different from the spatial frequency of the color component stripes on such layer so as to provide respective index signals in the tube output, a beat signal is derived from the tube output with a frequency that is the difference between the frequencies of the respective index signals, and such beat signal, which may be frequency multiplied to correspond to the frequency of the color component signals, is employed as a reference for separating the color component signals from each other in the tube output.

3,575,549

HUE CONTROL CIRCUIT

Charles F. Hepner, Chicago, Ill., and David L. Zahn, Milwaukee, Wis., assignors to Zenith Radio Corporation, Chicago, Ill.

Filed Sept. 17, 1969, Ser. No. 858,660

Int. Cl. H04n 9/44

U.S. Cl. 178-5.4HE

9 Claims

A phase shifting network for changing the phase of the chrominance signal or the reference signal to adjust the hue

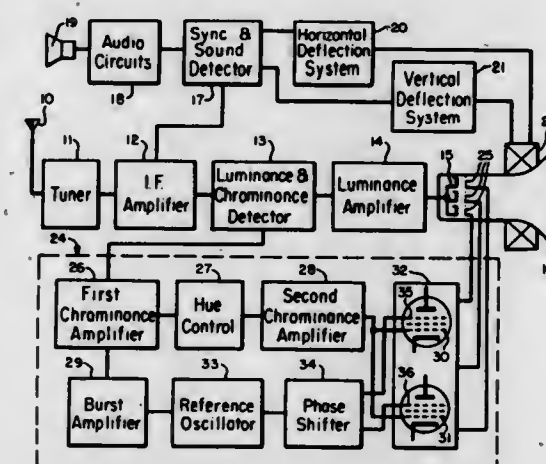
3,575,551

CHROMINANCE DEMODULATOR BLANKING CIRCUIT

Robert W. Krug, Janesville, Wis., assignor to Zenith Radio Corporation
 Filed May 17, 1968, Ser. No. 730,108
 Int. Cl. H04n 9/50, 5/44

U.S. Cl. 178-54

4 Claims



phase to the first output signal, is developed at the collector. A phase shift circuit comprising a resistor and a tunable inductance varactor combination, in parallel, are coupled across the emitter and collector and respond to the output signals to derive a wave signal at the junction of the resistor and the inductance varactor combination. The effective reactance contributed by the varactor to the phase shift circuit is adjustable so as to permit a selective shift of the phase of the derived signal relative to the applied signal.

3,575,550

OPTICAL APPARATUS FOR DEVELOPING A FREQUENCY-DOMAIN SIGNAL

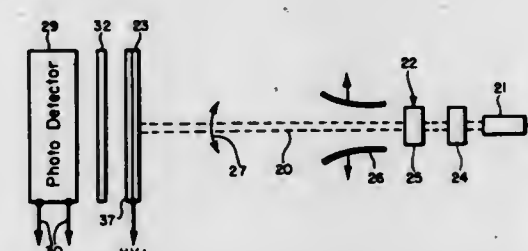
Adrianus Korpel, Prospect Heights, Ill., assignor to Zenith Radio Corporation, Chicago, Ill.

Filed July 23, 1968, Ser. No. 746,826

Int. Cl. H04n 5/44

U.S. Cl. 178-7.1

6 Claims



In a system for synthesizing frequency-domain video information, a composite video signal is developed in which frequency represents position of a picture element on an image and the amplitude of that signal represents picture or video amplitude at that position. To accomplish this, a vertically elongated band of light is caused to sweep in a horizontal direction; this may be achieved by sweeping a sheet beam of electrons across a luminescent screen. The light intensity is altered differently in individually different vertically separated portions of the band of light; a transparency exhibiting differences in transmission to the light in the vertical direction effects such alteration when placed in the path of the light. The light also is interrupted at individually different rates in individually different vertically separated portions of the band of light; a series of opaque stripes, fanned apart about a generally vertical axis and disposed in the path of the band of light, is illustrated as a means for accomplishing that result. Finally, a photodetector intercepts the altered and interrupted light and develops an electrical output signal that includes the desired frequency-domain video information.

MOTION PICTURE PRODUCTION SYSTEM AND METHOD

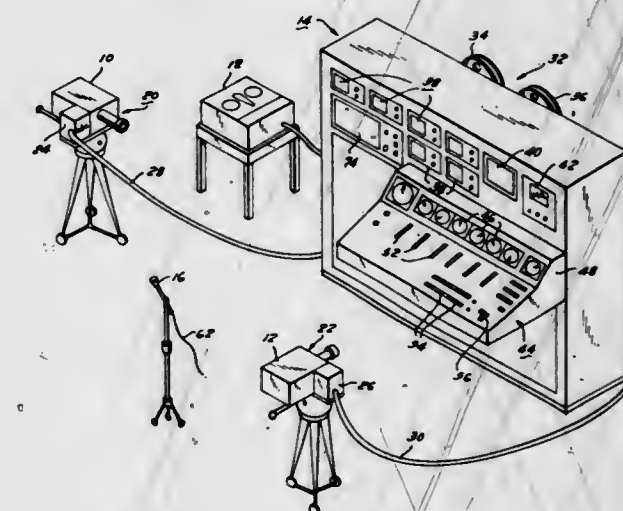
Norman H. Grant, and Edward Reingold, New York, N.Y., assignors to American Broadcasting Companies, Inc., New York, N.Y.

Filed Sept. 9, 1968, Ser. No. 758,286

Int. Cl. G03b 31/00; G11b 5/00; H04h 7/18

U.S. Cl. 178-5.8

18 Claims



In the production system, up to six camera units, each including a video camera and a motion picture camera, are used in making a motion picture. The video signals from the video cameras are sent to a control console where they are displayed on individual television monitors. By remote con-

trol of the camera unit from the console, the cameras are operated so that, if desired, only one of the cameras operates at a given time, and only the film from that camera is used in making the motion picture. The edge of the film in each camera is marked by exposing it to a colored light whenever that camera is operating, and a coded audio tone signal unique to that camera is recorded beside the program sound on a separate magnetic tape simultaneously with the marking of the motion picture film. At the same time, the instructions of the program director are recorded on the tape beside the tone code signals and program sound. In editing the film, the director's instructions are reproduced. Then, the colored marks on the film and the tone code signals are reproduced, the starting points of the marks are aligned with one another, and the film is cut and spliced in accordance with the director's instructions. The system also includes novel tone coding means, as well as novel lap dissolve means.

3,575,553

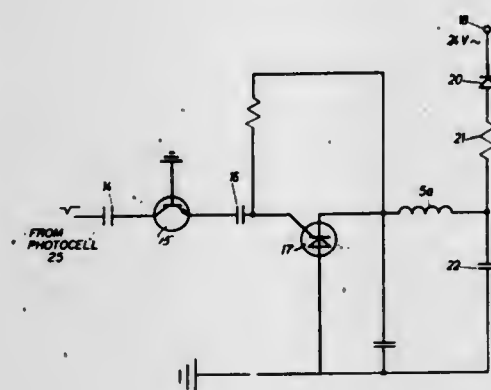
IMPULSE-CONTROLLED PRINTER DEVICE

Gunter Schrem, Albeck, Germany, assignor to Walther-Buromaschinen GmbH, Gerstetten-Wurt, Germany
Filed Sept. 30, 1968, Ser. No. 763,572
Claims priority, application Germany, Sept. 28, 1967, P1549962.4

Int. Cl. H04I 17/16

U.S. Cl. 178-38

2 Claims



There is disclosed a circuit for energizing the solenoid coil of an electromagnet operatively connected to move a type member of a printing mechanism in an electronic data processing machine into a position to print a symbol corresponding to a value registered in the machine. The circuit comprises a diode and a four-layer semiconductor power device connected in series with the solenoid coil and also connected to a source of alternating current. A capacitor is connected in parallel with the coil and the semiconductor device with the discharge time of the capacitor being less than the half-cycle of the alternating current.

3,575,554

FRAME SYNCHRONIZER FOR A BIORTHOGONAL DECODER

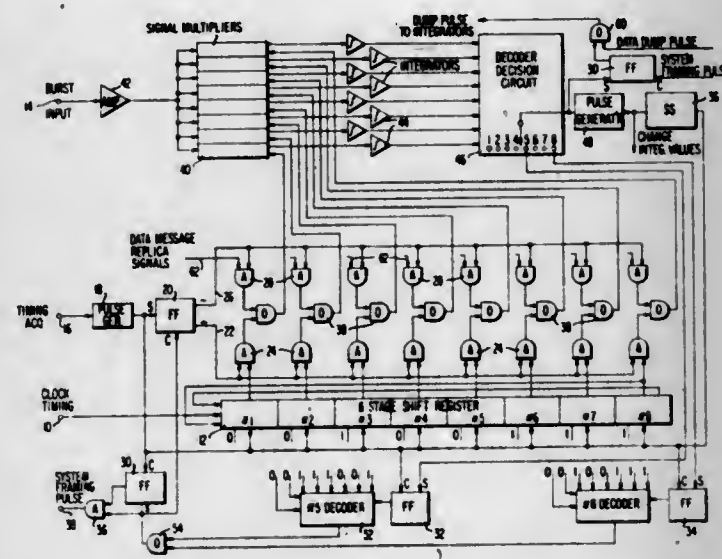
William G. Schmidt, Rockville, Md., assignor to Communications Satellite Corporation, Washington, D.C.
Filed Apr. 16, 1968, Ser. No. 721,756
Int. Cl. H04I 1/10

U.S. Cl. 178-69.5

6 Claims

An 8-bit word having good autocorrelation properties is recirculated through an eight stage shift register at a receiving station to simultaneously generate the eight phases of the word. At the same time, a sending station having an 8-bit frame length transmits a repeating sequence of the same word. The transmitted word, now corrupted by channel noise, is then correlation detected with the eight phases of it-

self generated at the receiving station. The phase producing the largest correlation output is selected as the synchronized



3,575,555

SPEECH SYNTHESIZER PROVIDING SMOOTH TRANSITION BETWEEN ADJACENT PHONEMES

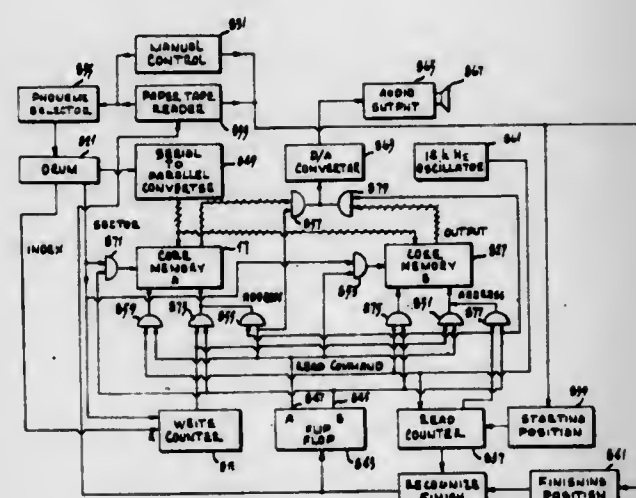
Joseph F. Schanne, Cheltenham, Pa., assignor to RCA Corporation

Filed Feb. 26, 1968, Ser. No. 708,323

Int. Cl. G10I 1/02

U.S. Cl. 179-1

6 Claims



An apparatus for synthesizing speech from phonemes is described. The smooth transition of one phoneme into the next is accomplished by a timewise truncation of the end of the leading phoneme and of the beginning of the following phoneme so that the formants are continuous over the junction. The apparatus described stores phonemes in digital fashion to permit their retrieval, starting and stopping the retrieval so that the desired truncation is achieved. A drum is used to store all the phonemes required and delays between phonemes are prevented by using core memories as temporary storage, transferring from the drum to one of the core memories while concurrently extracting the preceding phoneme from another core memory to be converted to sound.

3,575,556

DATA TRANSMISSION APPARATUS AND METHODS

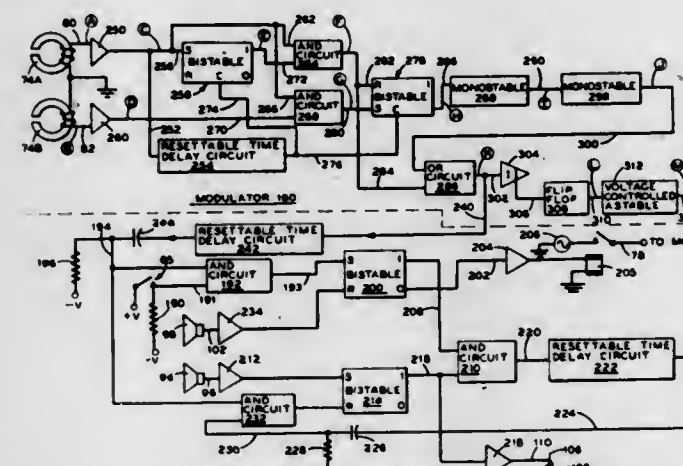
Edgar Wolf, New Hyde Park, and Francis C. Marino, Huntington, N.Y., assignors to Digitronics Corporation, Albertson, N.Y.

Filed Nov. 13, 1967, Ser. No. 684,098

Int. Cl. H04m 11/06

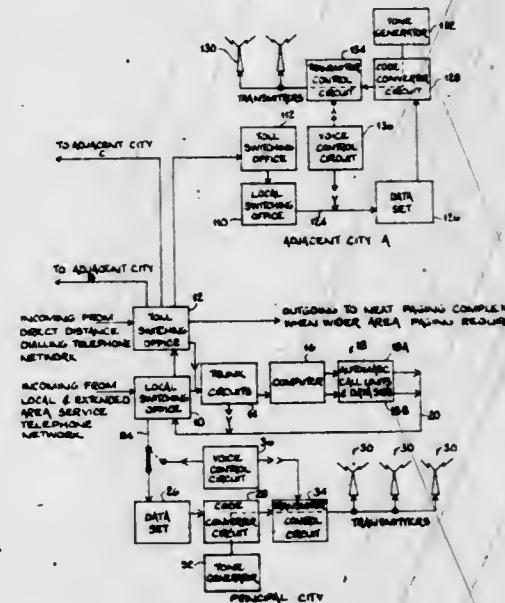
U.S. Cl. 179-2

6 Claims



A data transmission system comprises a magnetic tape recorder, and a signal transmitter connected via a telephone channel and a signal receiver. The magnetic tape recorder includes a magnetic recording transducer which records characters as a combination of bits serially along the magnetic tape. The recorded character bits are interleaved with sprocket bits. The so recorded magnetic tape is then read to cause a signal transmitter to transmit tone signals via a telephone channel to a signal receiver.

an information storage device to indicate radio paging areas corresponding to the dialed assigned number and, through the telephone system, to cause actuation of radio paging transmitters serving the radio paging areas to transmit a predetermined radio signal associated with the dialed assigned number. In some cases this will include a first informa-



3,575,557

TIME DIVISION MULTIPLEX SYSTEM

Harvey H. McCowen, Rochester, N.Y., assignor to General Dynamics Corporation

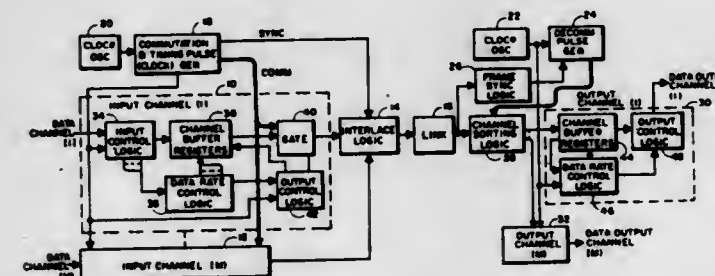
Filed July 25, 1968, Ser. No. 747,642

Int. Cl. H04I 7/06

U.S. Cl. 179-15

14 Claims

U.S. Cl. 177-100.1



A time division multiplex system is described wherein several data input sources which run asynchronously are multiplexed onto a common link or line, together with coordination data to insure a synchronous flow of data into the line. The coordination data is used upon demultiplexing to control the rate at which demultiplexing is accomplished in order to keep the average rate of data flow through the system approximately constant.

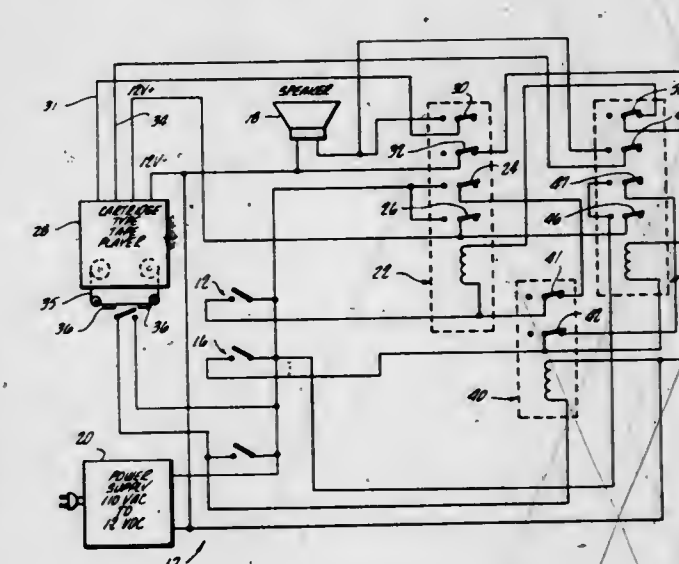
MESSAGE SELECTOR WITH PLURAL SENSORS TRIGGERING RANDOM SELECTION

Francis X. Tierney, 96 Gardenglen, West Covina, Calif. 91790

Filed Sept. 23, 1968, Ser. No. 761,512

Int. Cl. G11b 15/00

4 Claims



A plurality of messages are recorded on magnetic tape or the like. The messages are selected and broadcasted in a random fashion in response to a golf ball or the like being knocked into one of two or more channels which contain sensors or switches that actuate circuits associated with respective sensors.

ERRATA

For Classes 179-100.1 thru 200-19 see:
Patent Nos. 3,575,575 thru 3,575,579

U.S. Cl. 179-41

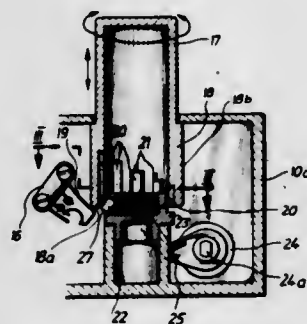
7 Claims

A telephone system and radio paging transmitters are combined by using dialed assigned telephone numbers to cause

3,575,560 CONTROL ARRANGEMENT FOR ELECTRICAL COMMUNICATOR

Rolf Mayer, and Walter Mentzel, Glengen, Germany, assignors to Robert Bosch Hausgerate G.m.b.H., Glengen, Germany

Filed June 17, 1968, Ser. No. 737,700
Claims priority, application Germany, July 1, 1967, B93276X
Int. Cl. H01h 43/00
U.S. Cl. 200—33 2 Claims

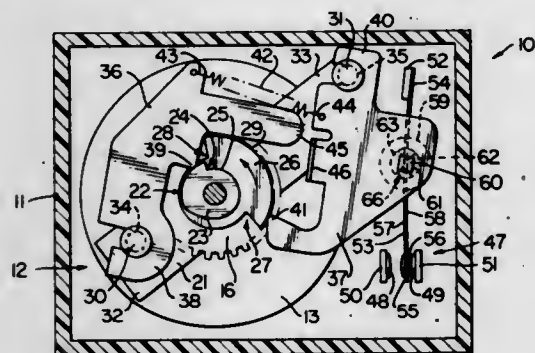


A coffee grinder comprises an electric motor, a switch which is normally open and can be closed to energize the electric motor. A spring-type wind-up timer which can be set for a plurality of different time periods. And a pushbutton which can be depressed and turned and which, when turned, preselects the extent to which it can be depressed while, when it is depressed to the extent preselected by the turning, it closes the switch and simultaneously winds the timer to a predetermined extent. Unwinding of the timer restores the pushbutton to its starting position resulting in opening of the switch and stopping of the motor.

3,575,561 DEFROST CONTROL SYSTEM DEVICE WITH IMPROVED LEVER OPERATING MEANS

Robert L. Wooding, Wolcott, Conn., assignor to Robertshaw Controls Company, Richmond, Va.

Filed Nov. 26, 1968, Ser. No. 779,129
Int. Cl. H01h 7/08, 43/10
U.S. Cl. 200—38 20 Claims

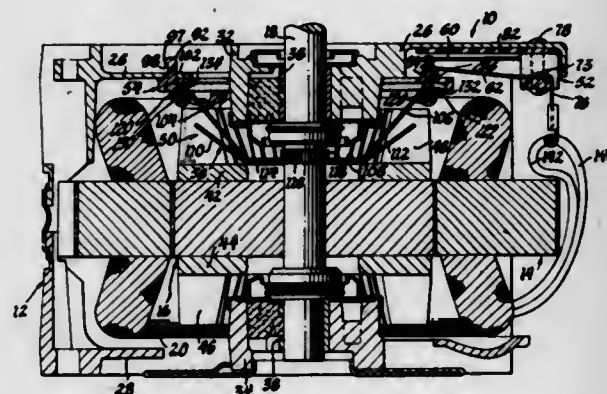


A control device for moving an electrical switch blade to one position thereof to initiate a defrost cycle or the like and, after a predetermined time period, moving the switch blade to another operating position thereof to terminate the defrost cycle, the control device having a pair of movable levers of which one is interconnected to the switch blade with the levers being continuously urged toward operative engagement with a cam means disposed therebetween. The cam means maintains the one lever in one position thereof until the defrost cycle is to be initiated whereby the one lever moves to another position thereof and remains in that position until the cam means causes the other lever means to engage against the one lever and move the same back to its one operating position, the cam means thereafter causing the other lever to move out of engagement with the one lever while maintaining the one lever in its one position thereof.

3,575,562 CENTRIFUGAL SWITCH ASSEMBLY FOR A MOTOR STARTING CIRCUIT

Jack A. Remke, Dayton, Ohio, assignor to General Motors Corporation, Detroit, Mich.

Filed Sept. 24, 1969, Ser. No. 860,559
Int. Cl. H01h 35/10
U.S. Cl. 200—80 3 Claims

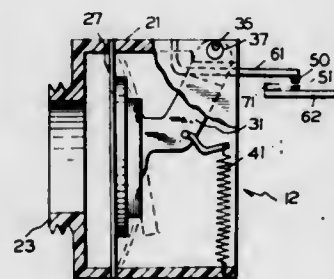


In a preferred form, a centrifugal switch assembly for a motor having a motor starting circuit includes centrifugally actuated spring fingers mounted on the motor shaft and extending radially outwardly between fan blades provided on one end of the motor rotor. The ends of the spring fingers engage an actuator plate which is slidably mounted on an end portion of the motor housing. The spring fingers move the actuator plate so as to engage and disengage switch contacts which are connected in the motor starting circuit.

3,575,563 AXIS TRANSLATOR SWITCHING MECHANISM

Carl Dexter Russell, Tulsa, Okla., assignor to Marvin O. Frantz, a fractional part interest

Filed Feb. 10, 1969, Ser. No. 798,049
Int. Cl. H01h 35/34
U.S. Cl. 200—83 4 Claims



The invention relates to a switch having a body with a contact arm supported by the body. A cam arm is loosely pivotally connected to the body and is adapted to close the contacts by camming the contact arm. Biasing means normally urge the cam arm in one direction to locate the cam arm in a first axis position and the switch actuator (which may comprise mechanical movement or fluid pressure) urges the cam arm in the opposite direction to a second axis position, which applies maximum force to the cam arm.

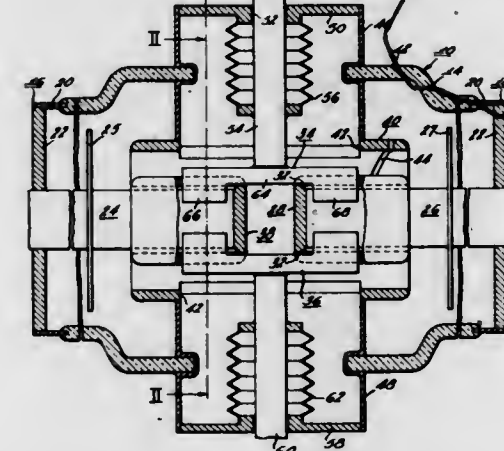
3,575,564 VACUUM-TYPE ELECTRIC CIRCUIT INTERRUPTER

Donald E. Weston, Chicago, Ill., assignor to Allis-Chalmers Manufacturing Company, Milwaukee, Wis.

Filed Sept. 10, 1969, Ser. No. 856,724
Int. Cl. H01h 33/66
U.S. Cl. 200—144 12 Claims

A vacuum interrupter comprises an evacuated housing into which a pair of rodlike stationary axially aligned spaced apart electrodes extend. The inner end of each electrode is capped with a cup-shaped arc runner having spiral slots therein. A

cylindrical arc shield having spiral slots therein surrounds the arc runners on each electrode and the gap therebetween. A pair of simultaneously movable bridging contacts are located in the housing on opposite sides thereof. Each bridging contact is reciprocally movable transversely to the axis on which the electrodes lie. Each bridging contact has an "open" position wherein it lies in or outside of an aperture in the cylin-

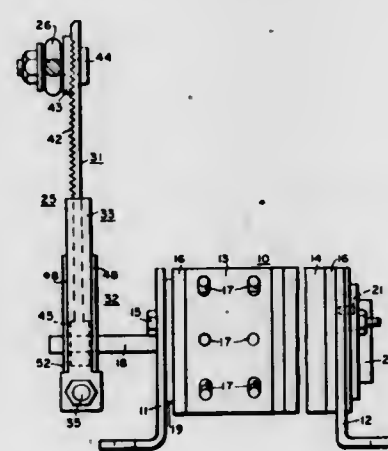


drical arc shield. Each bridging contact is movable from "open" to a "closed" position (and vice versa), through the aperture in the cylindrical arc shield and through apertures in the arc runners, wherein the bridging contact engages both electrodes. Each electrode is cylindrically shaped and that portion of the bridging contact engageable with the electrode is provided with a V-shaped notch which is partially filled with high vapor pressure metal such as bismuth.

3,575,565 OVER-TRAVEL DEVICE FOR ROTARY ELECTRIC SWITCH

Paul Silvius, Murrysville, Pa., assignor to Westinghouse Electric Corporation, Pittsburgh, Pa.

Filed Dec. 30, 1968, Ser. No. 787,926
Int. Cl. H01h 3/48, 21/38
U.S. Cl. 200—153 8 Claims

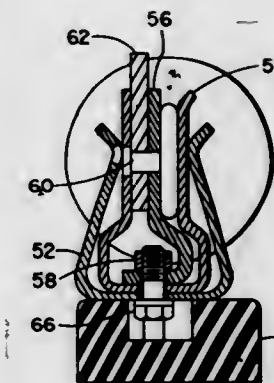


An overtravel device is provided for use with a rotary electric switch when the switch is utilized as an auxiliary control switch and actuated by a linkage mechanism connected to a main device, such as a power circuit breaker. The overtravel device includes a lever attached to the linkage mechanism and rotatably mounted between the legs of a U-shaped bracket which drives the shaft of the auxiliary switch. Rotation of the lever relative to the shaft is limited by leaf springs clamped to the bracket on opposite sides of the lever.

3,575,566 FUSE AND ELECTRICAL SWITCH BLADE MOUNTING MEANS

Tadeusz J. Rys, Lexington, Ky., assignor to Square D Company, Park Ridge, Ill.

Filed May 9, 1969, Ser. No. 823,413
Int. Cl. H01h 1/42, 21/54, 85/50
U.S. Cl. 200—162 4 Claims

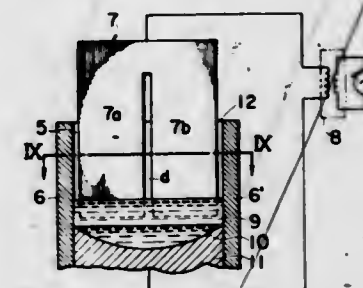


The mounting means includes a pair of aligned generally U-shaped spring members, a generally U-shaped mounting member disposed within the spring members, and a generally L-shaped mounting member having one leg dividing the space between the legs of the U-shaped mounting member and the other leg secured to the right portion of the U-shaped mounting member. A flat switch blade is pivotally mounted on one side of the dividing leg and a flat blade terminal of a fuse is receivable on the other side of the dividing leg of the L-shaped mounting member.

3,575,567 ELECTROSLAG WELDING METHOD

Yasuhiro Nishio; Yoshihiro Yamamoto; Zenichiro Okamoto, and Hiroshi Nakagawa, Hiroshima-ken, Japan, assignors to Mitsubishi Jukogyo Kabushiki Kaisha, Tokyo, Japan

Filed Sept. 16, 1968, Ser. No. 762,166
Int. Cl. B23k 9/18
U.S. Cl. 219—73 9 Claims



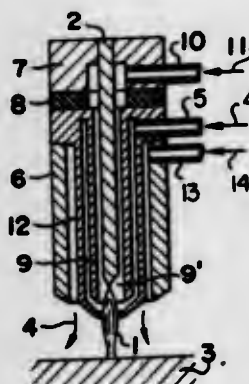
In an electroslag welding method employing a steel plate electrode inserted into the gap between the opposing surfaces of the base metal to be welded, at least that portion of the inserted electrode extending into the gap, when the overall width of the electrode is in excess of 300 mm., is divided into plural equal width sections each having a width of less than 300 mm. All of the sections of each electrode are commonly electrically connected to one terminal of a source of welding current. The electrode may comprise two physically separate sections commonly interconnected electrically to one terminal of the source, or may comprise a single electrode having that portion extending into the welding gap divided into two sections with the two sections being physically united to each other by that portion of the electrode outside the welding gap.

3,575,568 ARC TORCH

Haruo Tateno, Tokyo, Japan, assignor to Rikagaku Kenkyusho, Kitaadachi-gun, Japan
Filed May 31, 1968, Ser. No. 733,649
Claims priority, application Japan, June 8, 1967, 42/36720
Int. Cl. B23a 9/16, 9/00

U.S. Cl. 219-75

7 Claims



A method of establishing an electric arc in an electric arc torch having a cathode unit and a plurality of substantially coaxial bushings. The method comprises flowing an enveloper gas between the cathode unit and the adjacent bushing, establishing an arc between the tip of the cathode and the adjacent bushing, flowing an enveloper gas between the adjacent bushing and the next surrounding bushing, and subsequently shifting the end of the arc from the adjacent bushing to the workpiece and stopping the enveloper gas originally presented between the cathode unit and the adjacent bushing.

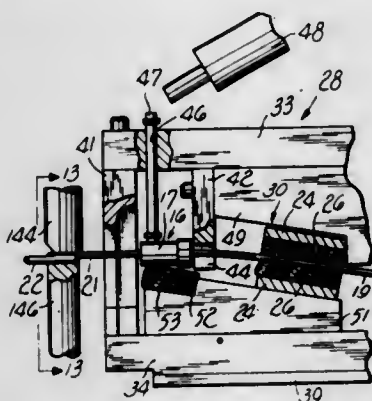
3,575,569

APPARATUS FOR WELDING WIRE LEADS TO THE TERMINALS OF ELECTRICAL COMPONENTS

Henry D. Mitchell, Jr., Winston-Salem, and Albert Q. Wooten, Mocksville, N.C., assignors to Western Electric Company, Incorporated, New York, N.Y.
Filed Feb. 6, 1969, Ser. No. 796,986
Int. Cl. B23k 9/12; B21j 13/08

U.S. Cl. 219-79

7 Claims



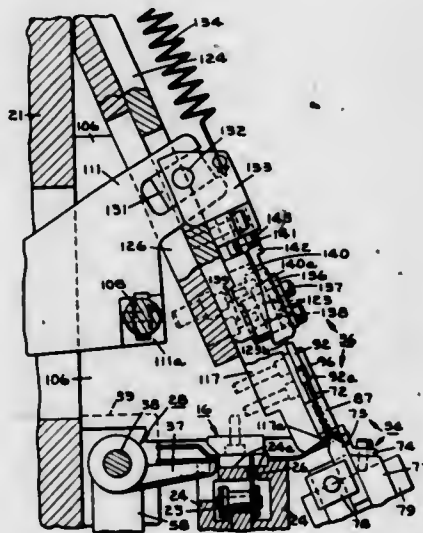
An automatic lead welding apparatus includes an article (solid electrolytic capacitor) carrying fixture mounted on a movable carriage, a welding head, an article detector, a carriage position detector, and a lead fabrication and transfer mechanism. Solid electrolytic capacitors are resiliently supported within the carrying fixture with anode wires projecting in cantilevered fashion. The carrying fixture is moved past the welding head where the detectors effect stoppage of the fixture successively to interpose each projecting anode wires within the welding head between a pair of relatively movable welding electrodes. The lead fabrication mechanism feeds, forms, and cuts a lead wire from a wire supply. The transfer mechanism grips and positions the formed lead under the interposed anode wire at which time the welding electrodes are successively operated to flex, clamp, and weld a cantilevered anode wire to a formed lead.

3,575,570 APPARATUS FOR FABRICATING A CONTACT ON AN ELECTRICALLY CONDUCTING MEMBER

John S. Gellatly, Lagrange, and James C. Houda, Jr., Downers Grove, Ill., assignors to Western Electric Company, Incorporated, New York, N.Y.
Filed Dec. 6, 1968, Ser. No. 781,841
Int. Cl. B23k 9/12, 11/00

U.S. Cl. 219-80

10 Claims



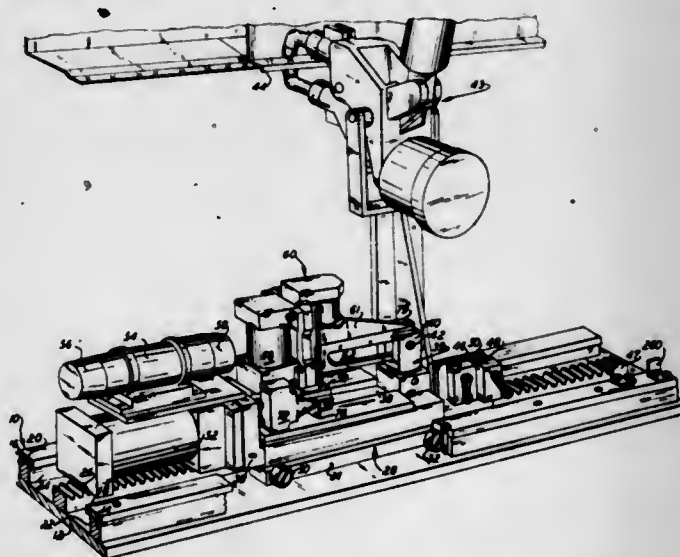
Apparatus for fabricating a contact on an electrically conducting member, such as one of a plurality of elongated wire springs of a terminal connector block assembly, includes a first shearing member having a shearing edge and a gauging surface engageable with a side of the wire spring for locating it relative to the shearing edge. A contact tape is fed so that a leading end portion thereof projects beyond the shearing edge transversely of the wire spring. The leading end portion of the contact tape and the wire spring then are welded to one another so that the contact tape extends across the wire spring a preselected distance relative to a side of the wire spring. The welded contact tape and the wire spring next are moved relative to the first shearing member to bring the side of the wire spring against the gauging surface of the first shearing member. A second shearing member then cooperates with the shearing edge of the first shearing member to shear off the leading end portion of the contact tape substantially flush with the side of the wire spring, to form a contact thereon.

3,575,571

INDEXING MECHANISM AND PROCESS
Zygmunt Sowa, Detroit, Mich., assignor to Ford Motor Company, Dearborn, Mich.
Original application Apr. 12, 1967, Ser. No. 630,276, now abandoned. Divided and this application Apr. 4, 1969, Ser. No. 834,573
Int. Cl. B23q 5/22; B65g 47/00

U.S. Cl. 219-80

13 Claims



This indexing mechanism is used to index a spot welding machine along a track to weld vehicle body components at

equally spaced places. The mechanism comprises two basic assemblies, a frame carrying the spot welding gun and an indexing carriage carried by and movable relative to the frame. Retraction of a vertical air cylinder attached to the carriage acts through an arm to engage a frame positioning member in linear gear teeth on the track, thereby holding the gun during the welding step. Simultaneously with the welding step a horizontal air cylinder attached to the frame extends to move the indexing carriage along the track a distance equal to the spacing between welds.

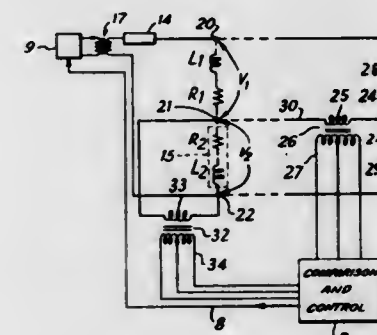
3,575,572

WELDING CONTROL

Rodney Walter Levinge, Farnborough, Hampshire, England, assignor to The Solartron Electronic Group Limited, Farnborough, Hampshire, England
Filed July 3, 1969, Ser. No. 838,745
Claims priority, application Great Britain, July 8, 1968, 32573/68

U.S. Cl. 219-110

9 Claims



A method and apparatus for resistance welding in which a first voltage is derived including the voltage drop between welding electrodes and from this an output voltage is derived by subtraction of a substantially fixed voltage from the first voltage. Welding current is arrested when the output voltage falls by a predetermined amount.

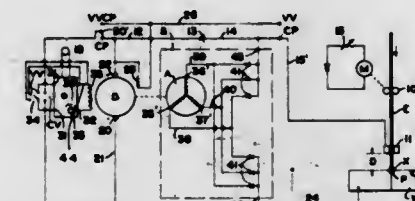
3,575,573

METHOD OF AND POWER SUPPLY FOR ELECTRIC ARC WELDING

Jon D. McCollister, Mentor, and John E. Carroll, Lyndhurst, Ohio, assignors to The Lincoln Electric Company, Cleveland, Ohio
Filed June 20, 1968, Ser. No. 738,478
Int. Cl. B23k 9/10

U.S. Cl. 219-135

20 Claims



Electric arc power supply for automatic arc welding of the drop transfer type with a small diameter electrode comprising a principal and supplementary DC power source in parallel wherein the principal power source has a short circuit rate of current rise less than 60,000 amperes per second and the supplementary power supply has a short circuit rate of current rise greater than 60,000 amperes per second. The principal source supplies current at all times. The supplementary source furnishes no or low current during arcing but when the drop contacts the weld pool and short circuits the power supply, the supplementary source supplies a brief pulse of current sufficient to very rapidly break the short circuit and reestablish the arc.

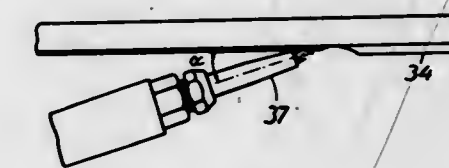
3,575,574

METHOD OF BACKING STRIP REMOVAL

Goran Folke Almqvist, Gothenburg, Sweden, assignor to Elek-triska Svetsningsaktiebolaget, Goteborg, Sweden
Filed July 7, 1969, Ser. No. 839,242
Claims priority, application Sweden, July 11, 1968, 9536/68

U.S. Cl. 219-137

3 Claims



A method of making a butt weld between sheet steel members having a thickness of 0.2 in. or more, comprising the steps of welding the sheet steel members from one side only by the consumable-electrode arc welding process with the aid of a backing strip of steel which is welded on to but not fused through the welding operation, said backing strip having a thickness not less than 0.08 in., and subsequently removing the steel backing strip by a flame machining operation.

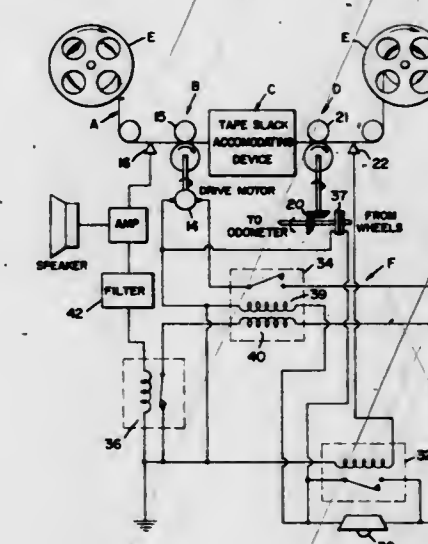
3,575,575

TAPE AND TAPE TRANSPORT PROVIDING DISTANCE SYNCHRONIZED MESSAGES

David W. Kean, 19687 Gary Ave., Sunnyvale, Calif. 94086
Filed Jan. 6, 1969, Ser. No. 789,223
Int. Cl. G11b 15/28, 15/46, 31/00

U.S. Cl. 179-100.1

6 Claims



A vehicle-mounted tape transport adapted to play a single tape having sequential messages, each message beginning at preselected points along a designated route of vehicle travel.

3,575,576

POWER RAIL SUPPORT AND SHIELD

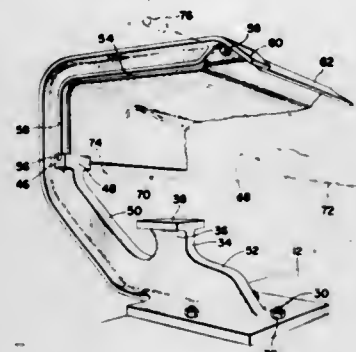
Johan L. Harmsen, 68 Hawkridge Avenue, Markham, Ontario, Canada
Filed Apr. 1, 1969, Ser. No. 812,098
Int. Cl. B60m 1/30

U.S. Cl. 191-32

4 Claims

A support for supporting a power rail and a rail shield consisting of a generally C-shaped unitary member having a base

portion adapted for securing said member to a railway cross-tie or the like and means for detachably securing a generally



L-shaped rail shield to the inner side of the vertical leg and upper horizontal arm of the C-shape.

3,575,577

SWITCH MODULE

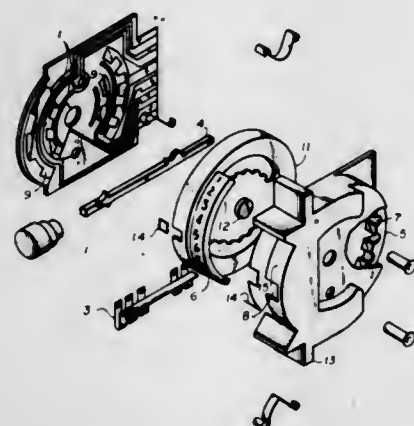
Jeffrey Butler Cunnane, Yonkers, N.Y., assignor to Lunar Electronics, Inc., New York, N.Y.

Filed Sept. 15, 1969, Ser. No. 857,913

Int. Cl. H01h 19/58, 21/78

U.S. Cl. 200—11

8 Claims



A switch module which provides power-on selective switching between an input channel and a plurality of output channels without contact of channels which lie in sequence between the in-use and the desired channel. The switch module utilizes a radial moving lever containing a contact strip to effectuate switching from standby to encoding mode on an enclosed encoding circuit element. Interchannel switching is accomplished only when the lever is in the standby mode position with regard to the encoding circuit element. The switch module is useful in programming of automated equipment.

3,575,578

IGNITION DISTRIBUTOR WITH IMPROVED CAM TIMING MEANS

Roger Habert, Paris, France, assignor to Ducellier et Cie, Paris, France

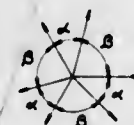
Filed June 6, 1969, Ser. No. 831,084

Claims priority, application France, June 18, 1968, P.V. 155438

Int. Cl. H01h 19/00, 19/62

U.S. Cl. 200—19R

4 Claims



Three sets of breaker points are used in an ignition distributor, two of which are in parallel with each other and the

third of which is in series. The parallel pair is operated so that the dwell of the two sets overlap while the third set of points has a dwell time between successive operations of the parallel pair. The time of operation of the third set of points may be chosen to produce an irregular pattern of ignition sparks.

3,575,579

IMPROVED CAM FOLLOWER ROLLER STRUCTURE FOR DISTRIBUTOR CONTACT BREAKER ARM

Patrick J. McGannon, 2797 Steven St., Oceanside, N.Y. 11572

Continuation-in-part of application Ser. No. 616,910, Feb. 17, 1971, now abandoned. This application Dec. 10, 1969, Ser. No. 883,894

Int. Cl. H01h 3/00, 19/62

U.S. Cl. 200—19

2 Claims



Ignition point means having a conventional multilobe cam. The cam follower comprises a plurality of independently rotatable discs of plastic such as nylon, so that the effects of nicks and wear on the cam follower are substantially eliminated.

3,575,580

PORTABLE THEMGRAPHIC DUPLICATOR MOUNTED IN A CARRYING CASE HAVING HINGED HOUSING PORTIONS

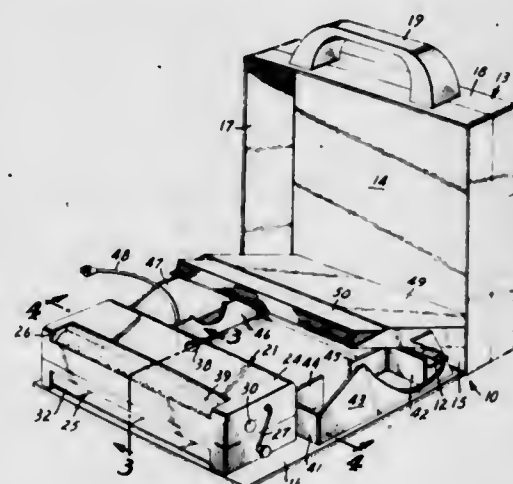
Glenn R. Anderson, Minneapolis, Minn., assignor to Minnesota Mining and Manufacturing Company, St. Paul, Minn.

Filed Jan. 29, 1970, Ser. No. 6,652

Int. Cl. H05b 1/00; G03b 41/00

U.S. Cl. 219—216

3 Claims



A portable duplicator in an attache case includes a heating station for subjecting copy-sheet and master to uniform heating, and a container tiltable for easy access to a supply of copying materials.

3,575,581

HEAT-GENERATING PIPE UTILIZING SKIN EFFECT CURRENT CONTROLLED LOCALLY IN HEAT GENERATION BY SHORT-CIRCUITING BRIDGES

Masao Ando, Yokohamashi, Japan, assignor to Chisso Corporation, Osaka, Japan

Filed May 15, 1969, Ser. No. 824,975

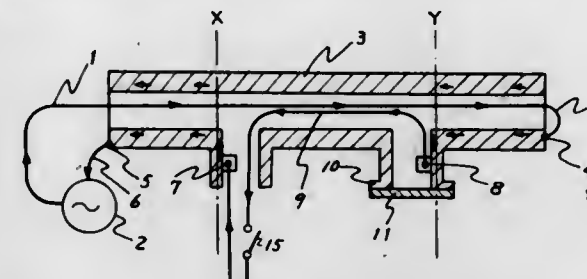
Int. Cl. H05b 5/08

U.S. Cl. 219—301

2 Claims

In a heat-generating pipe comprising a highly ferromagnetic pipe and an insulated conductor line inserted therein

and having such a connection that AC flowing through the insulated conductor line is equal in intensity and opposite in direction to the AC flowing concentratedly through the inner wall portion of the pipe due to the skin effect of AC, the heat-generating pipe is characterized in that a certain section



of the inner surface of the pipe is brought to short circuit state by a conductor line optionally including a thermostatic or other switch and having an impedance which is selected according to the requirement for decreasing or elimination of heat generation in said section, to control the heat generated in said section.

3,575,582

ELECTRIC FURNACE

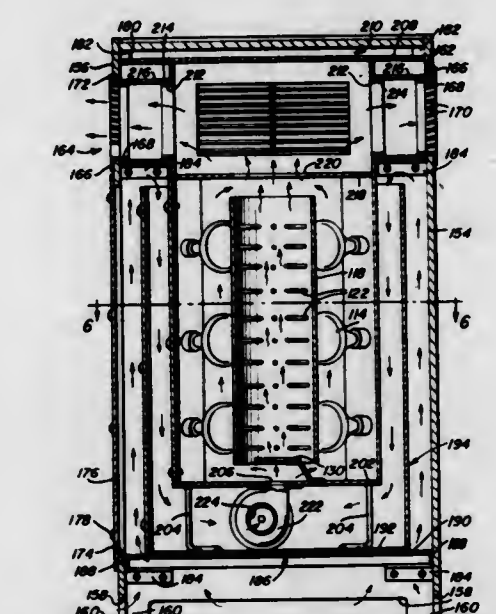
Darrell W. Covault, Kingman, Ind. (R.R. #1, Box 3 Veeder-sburg, Ind. 47987)

Filed Aug. 27, 1968, Ser. No. 755,604

Int. Cl. F24h 3/04; H05b 1/00

U.S. Cl. 219—368

3 Claims



An electric air heater is provided with a cabinet enclosing a heating chamber having top, bottom and sidewalls. The heating chamber houses an open-ended cylindrical heat exchanger positioned so as to absorb heat from a plurality of lamps mounted at the junctures of the sidewalls. A fan is provided to pump air from a cabinet air inlet into an air inlet in the bottom wall. The air is pumped into and around the heat exchanger, over the lamps and out an air outlet in the top wall. The cabinet is kept cool by passing the cool incoming air through a tortuous air flow ducts surrounding the heating chamber before the air flows into the chamber. The heat exchanger is provided with a plurality of inwardly directed ferrous rod members secured to the heat exchanger by a dome-shaped bronze weld.

3,575,583

HOT AIR BLOWER

James A. Brown, Beverly Hills, Mich., assignor to Oakland Metal Fabricators, Inc., Warren, Mich.

Filed Sept. 5, 1968, Ser. No. 757,543

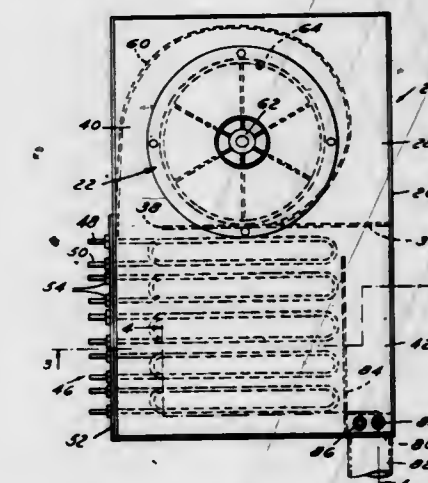
Int. Cl. F24h 3/04; H05b 1/02

U.S. Cl. 219—370

5 Claims

A hot air blower of simple, compact and inexpensive construction wherein the air heating means and blower means

are both enclosed within a single housing comprising a spaced apart pair of sheet members having sheet metal wall means extending therebetween to form enclosures for the heater and blower, respectively, the blower housing or scroll forming a portion of said wall means enclosing the blower, and both the heater and the blower being supported between the sheets on removable panels permitting easy access and



replacement of parts. The construction and arrangement of the heater and blower within the space defined by the sheet-like members insures a uniform air flow around the heaters preventing "hot spots," and control means are provided operable to maintain a constant hot air temperature at the outlet of the unit, together with safety devices for preventing overheating.

3,575,584

CONTROL SYSTEM AND UNIT FOR A COOKING APPARATUS AND THE LIKE

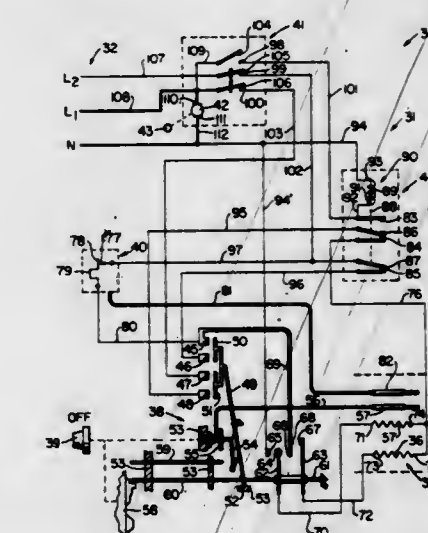
Carl J. Goodhouse, Litchfield, and Paul T. Flumm, Oakville, Conn., assignors to Robertshaw Controls Company, Richmond, Va.

Filed Oct. 14, 1969, Ser. No. 866,247

Int. Cl. H05b 1/02

U.S. Cl. 219—492

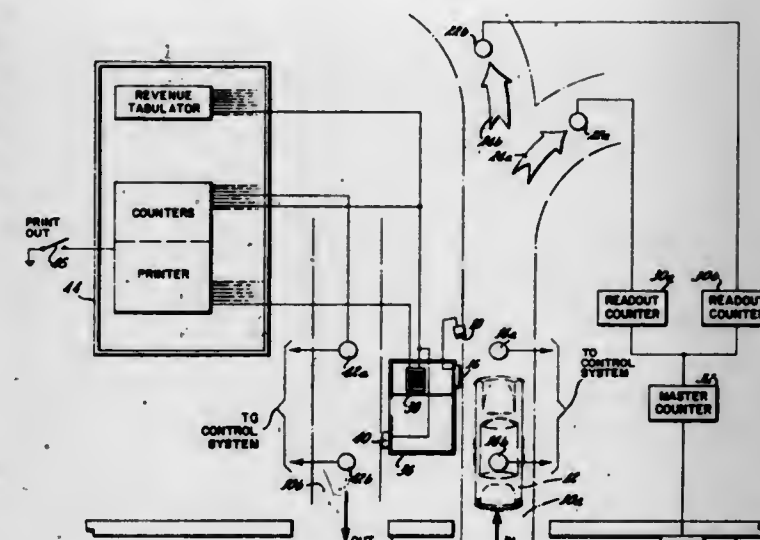
23 Claims



A control unit having a thermostatically operated switch means adapted to interconnect and disconnect an electrical source to and from a heating means of a cooking oven to tend to maintain a selected temperature output when the switch means is moved from an off position thereof to a selected on position thereof, a timer operated switch means and a relay switch means each having first and second positions whereby the relay switch means and the timer operated switch means are adapted when in their first positions thereof to interconnect the source to the heating means through the thermostatically operated switch means. The timer operated switch means is adapted to cause the relay switch means to move to its second position when the timer operated switch

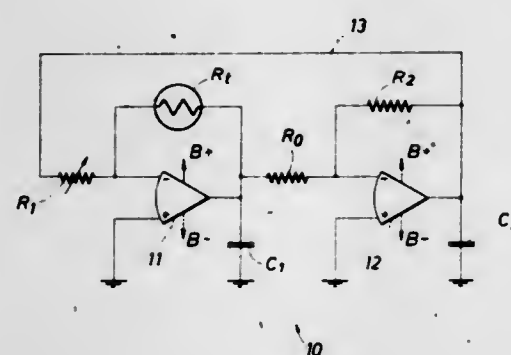
means automatically moves to its second position, the timer operated switch means and the relay switch means being adapted to maintain the relay switch means in its second position even though the timer operated switch means automatically moves back to its first position after the lapse of a selected cooking time period until the thermostatically operated switch means is turned to its off position so that the relay switch means can automatically move back to its first position. The relay switch means when in its second position providing for a warmth retaining and noncooking operation of the heating means, or for a nonoperating condition of the heating means.

3,575,585
RADIOMETRIC TEMPERATURE REFERENCE
 Leo G. Monford, Jr., Texas City, Tex.
 Filed Nov. 26, 1969, Ser. No. 880,272
 Int. Cl. H05b 1/02
 U.S. Cl. 219—505



tion if desired. Preset amounts to simplify ticket validation are incorporated in the system.

3,575,587
DIGITAL PROPORTIONAL PLUS RESET PROCESS
CONTROLLER
Harry W. Mergler, Middleburg Heights, Ohio, assignor to
Sybron Corporation, Rochester, N.Y.
Filed Feb. 7, 1966, Ser. No. 525,505
Int. Cl. G05b 6/00
U.S. Cl. 235—151.1
14 Claims



A system or component (device) having an electrical characteristic which varies with changes in its own temperature is employed as part of a feedback loop in an operational amplifier circuit. Power applied to the device raises its temperature which in turn changes the value of its electrical characteristic. The output of the operational amplifier circuit forms the input to a second operational amplifier where the polarity of the signal is inverted and fed back to the input of the first operational amplifier circuit in a positive feedback loop. The circuitry associated with the device automatically alters the power supplied to the device causing it to heat or cool until an equilibrium condition is reached, corresponding to a fixed temperature and fixed energy radiation of the device. Any tendency for variation in the temperature of the device produces an almost instantaneous change in the power supplied to the device which thus acts to maintain a constant temperature and a constant infrared energy level radiation from the body.

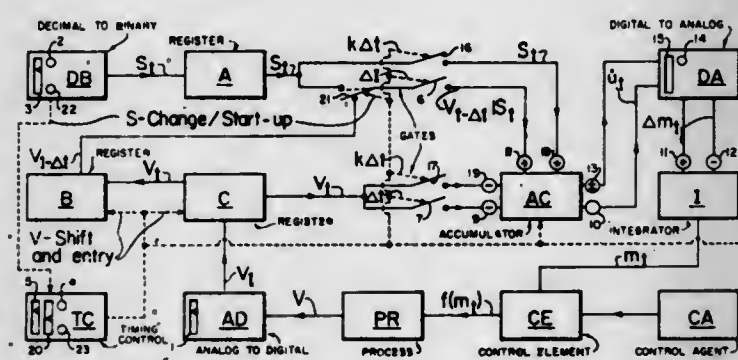
3,575,586
AUTOMATIC AUDIT SYSTEM FOR PARKING GARAGES
Stanley A. Kroll, 811 E. 22nd St., Brooklyn, N.Y.
Continuation-in-part of application Ser. No. 277,524, May 2,
1963, now abandoned. This application Sept. 7, 1967, Ser.
No. 677,816
Int. Cl. G06k 15/00; G08g 1/00
U.S. Cl. 235—61.9 **24 Claims**

An apparatus for automatically recording car count and revenue data for an exit lane of a parking facility. The recorder prints a record of each tour of duty on the exit lanes, including information on the identification number of the employee, totals before and after the tour, all transactions not following the prescribed procedures, the time, and

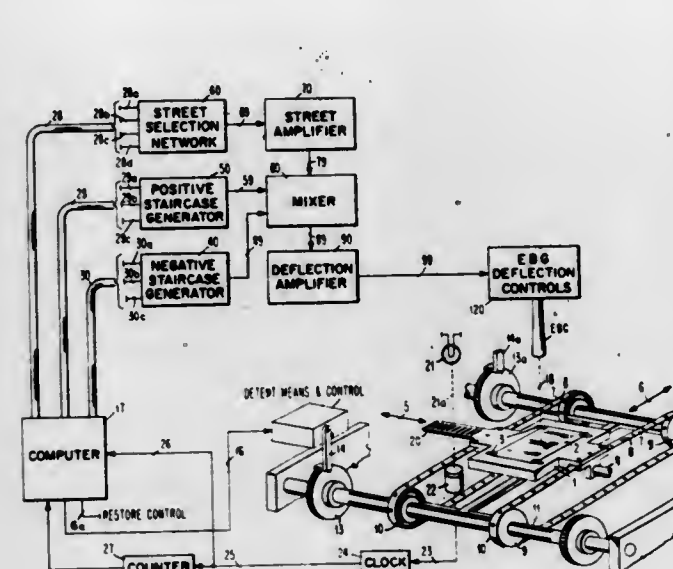
A direct digital process controller suitable for control of a single loop. The control algorithm characterizing the controller's action corresponds to the conventional analog proportional plus reset case. However, what corresponds to the proportional effect is exercised by the controller at a greater frequency than what corresponds to the reset effect.

3,575,588
**ELECTRON BEAM CIRCUIT PATTERN GENERATOR
FOR TRACING MICROCIRCUIT WIRE PATTERNS ON
PHOTORESIST OVERLAID SUBSTRATES**
**Karl Hermann, Vestal; Warren R. Wrenner, Endicott, and
Joseph V. Riley, Vestal, N.Y., assignors to International
Business Machines Corporation, Armonk, N.Y.**
Filed Sept. 9, 1968, Ser. No. 758,474
Int. Cl. G03b 27/42; H05k 3/00
U.S. Cl. 235—151.1 **5 Claims**

The tracing of microcircuit wire patterns on photoresist overlaid substrates (circuit boards) by means of an electron beam. Pattern tracing is achieved by controlling the deflection of the beam in conjunction with the oscillatory motion of the substrate mounted on an oscillating stage. A feedback system from a grating on the stage provides synchronized

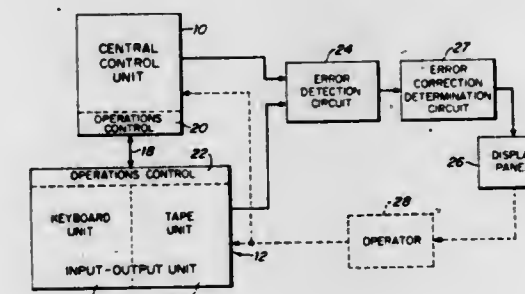


pulses to a clock which in conjunction with the control data tube digit storage stages and one further stage for storing the



derived from a computer, provides control information for a desired circuit pattern.

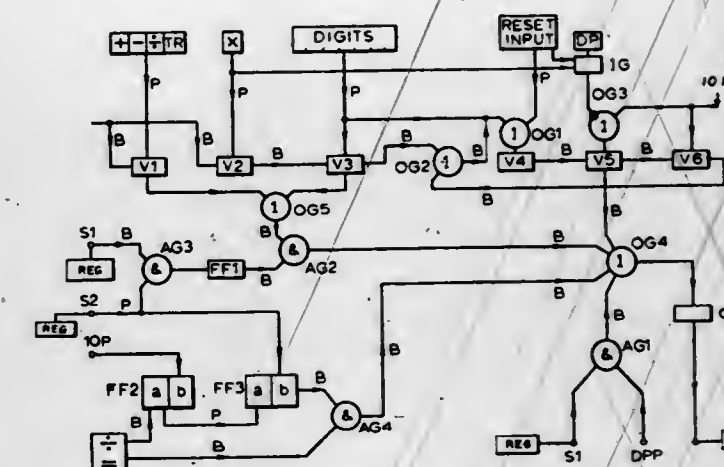
3,575,589
ERROR RECOVERY APPARATUS AND METHOD
Farid J. Neema, and John F. Graham, Sudbury, Mass., as-
signors to Honeywell Inc., Minneapolis, Minn.
Filed Nov. 20, 1968, Ser. No. 777,409
Int. Cl. G06F 11/00
U.S. Cl. 235-153
19 Claims



A method and apparatus for indicating the occurrence of, and procedure for correcting an error in an information processing device, by classifying various types of errors in accordance with various error recovery procedures to be used by an operator to correct such errors, and providing indications of such errors which specify which of a plurality of error recovery procedures is to be used to correct said errors.

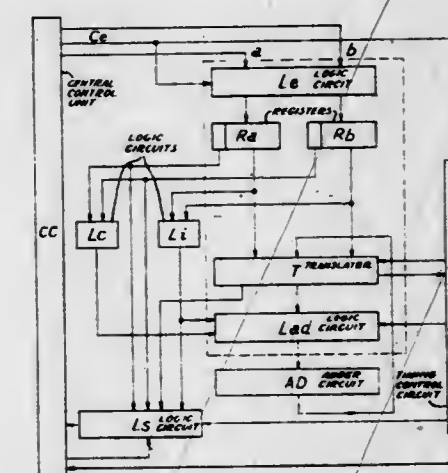
3,575,590
CALCULATION BY COUNTING WITH DECIMAL POINT
CONTROL APPARATUS
Gerald Offley Crowther, Cheam; George Charles Deli, London, and Aragula Ramachandra Rao, Wallington, England, assignors to U.S. Philips Corporation, New York, N.Y.
Filed May 29, 1967, Ser. No. 641,846
Claims priority, application Great Britain, May 31, 1966, 24221/66
Int. Cl. G06f 7/48

U.S. Cl. 235—160 **Int. Cl. G06F 7/46** **7 Claims**
A computer having a plurality of number storage registers. Each register includes a plurality of cold-cathode stepping-



numerical equivalent of the decimal-point information relating to the number stored in the plurality of stages.

3,575,591
ADDITION CIRCUIT FOR THE DIGITAL CODES
GENERATED IN ACCORDANCE WITH A NONLINEAR
COMPRESSION LAW
Andre Edouard Joseph Chatelon, Montrouge; Calude Paul
Henri Lerouge, Montgeron, and Jean Perrault, Port Marly,
France, assignors to International Standard Electric Cor-
poration, New York, N.Y.
Filed Sept. 27, 1968, Ser. No. 763,234
Claims priority, application France, Oct. 16, 1967, 124561
Int. Cl. G06F 7/50
U.S. Cl. 235-168
10 Claims

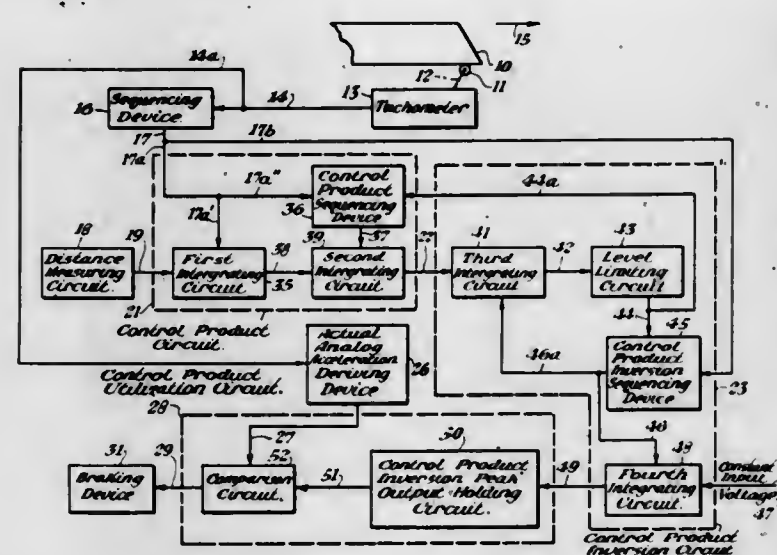


There is disclosed an arrangement including a translator to derive two linear code signals from two compressed code signals and compressing the resultant sum of the two linear code signals in the translator after addition in an adder circuit. The translator comprises a shift register operating in two directions and a counter.

3,575,592
ACCELERATION REFERENCE CIRCUIT
William L. Carter Jr., Pittsburgh, and Raymond G. Stein, Jr.,
Allison Park, Pa., assignors to Westinghouse Air Brake
Company, Swinsvale, Pa.
Filed Feb. 4, 1969, Ser. No. 796,517
Int. Cl. G06g 7/18, 7/78
U.S. Cl. 235—183 **6 Claims**

This invention relates to an acceleration reference circuit for producing and utilizing a first parameter analogous and proportional to a control acceleration of a vehicle. This first parameter is compared with a second parameter analogous and proportional to actual vehicle acceleration. The measuring of the vehicle acceleration will occur over a predetermined

mined distance range. The above is achieved through the use of a pulse input indicative of vehicle speed, an analog voltage input indicative of distance remaining to the end point of the



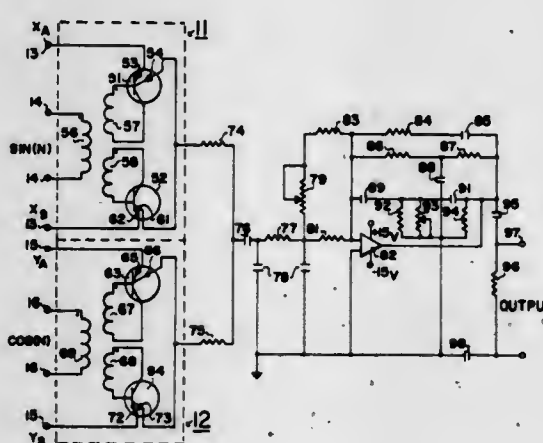
predetermined distance range, and a constant voltage input, all intercorrelated by sequencing devices, integrators, and level detectors.

3,575,593 COMPUTER MODULATOR INCLUDING RECTANGULAR-TO-POLAR COORDINATE TRANSFORMATION

Lynn A. Staples, Greene, N.Y., assignor to Singer-General Precision, Inc., Binghamton, N.Y.
Filed Sept. 18, 1968, Ser. No. 760,546
Int. Cl. G06g 7/22

U.S. Cl. 235-186

7 Claims



In spite of the increased use of digital computer systems, simple analog computers still have a place in vehicle trainers, particularly the small vehicle trainers. However, the problem has been to reduce the size of the computers and to improve their expected life and maintainability. The computer modulator of this invention comprises an effective device for producing signals representative of polar coordinates. The device comprises a pair of sin-cos modulators each being controlled by a notched rectangular wave and having applied to it electrical potentials which represent the quantities to be used in a calculation. The notched control wave is so mutilated as to reduce its two major harmonics to a very low amplitude so that the filtering required for the final output signal is at a minimum. The control signal is applied to the primary of a transformer having two secondaries. Each secondary is connected across a transistor to control conduction therethrough, and the potential whose amplitude represents the quantity to be used is applied to one of the primary electrodes of the transistor. In this manner conduction through the transistor of the signal representing the quantity is controlled by the control signal. Each secondary controls a

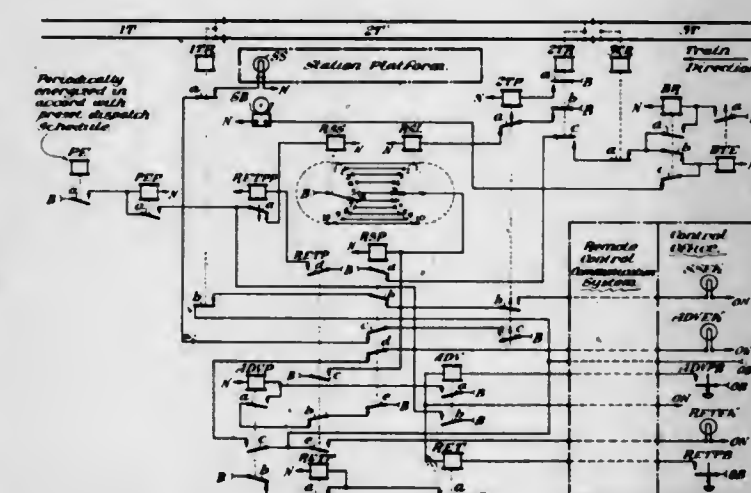
separate transistor so that two input signals are alternately connected to an output. The second portion of the modulator duplicates the first but the two control signals applied to the two portions of the modulator are 90° out of phase. This produces sine-cosine outputs which are combined for application to a filter to produce a single composite sine wave output signal.

3,575,594 AUTOMATIC TRAIN DISPATCHER

Joel E. Elcan, Monroeville, Pa., assignor to Westinghouse Air Brake Company, Swissvale, Pa.
Filed Feb. 24, 1969, Ser. No. 801,586
Int. Cl. B611 27/00

U.S. Cl. 246-2

8 Claims



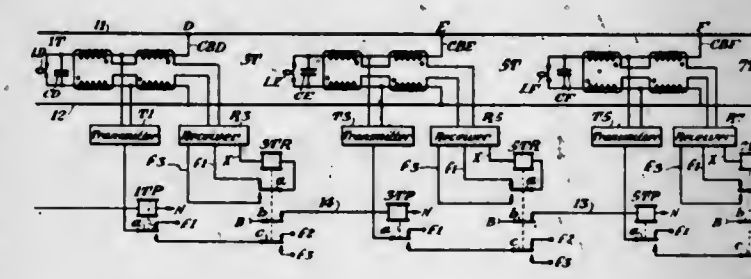
An automatic train dispatcher for directing the departure of railroad trains from a station in accordance with prescheduled departure times. Control apparatus responds to readout from a prerecorded schedule and to train arrivals to normally authorize departures by the schedule. Remote control by the system supervisor is superposed on this normal operation to advance or retard departure times to meet unusual operating situations. Advance and retard control functions are separately received and registered at the station. An advance control immediately activates the departure signal. A retard control interrupts the prescheduled readout control and inhibits the activation of the departure signal until released. The release action is specifically an advance control which is effective only to cancel the interrupt and inhibit conditions.

3,575,595 RAILROAD TRACK CIRCUITS

Rayford C. Pace, Homewood, Ala., assignor to Westinghouse Air Brake Company, Swissvale, Pa.
Filed May 27, 1969, Ser. No. 828,198
Int. Cl. B611 23/30

U.S. Cl. 246-34

7 Claims



A crossbond with a tuned circuit portion, matching the impedance of the rail circuit, is connected across the rails at each location between adjoining noninsulated track sections. A track circuit transmitter is so connected to each crossbond that its output divides equally between the tuned circuit and rail circuit paths. A hybrid coil arrangement couples a track

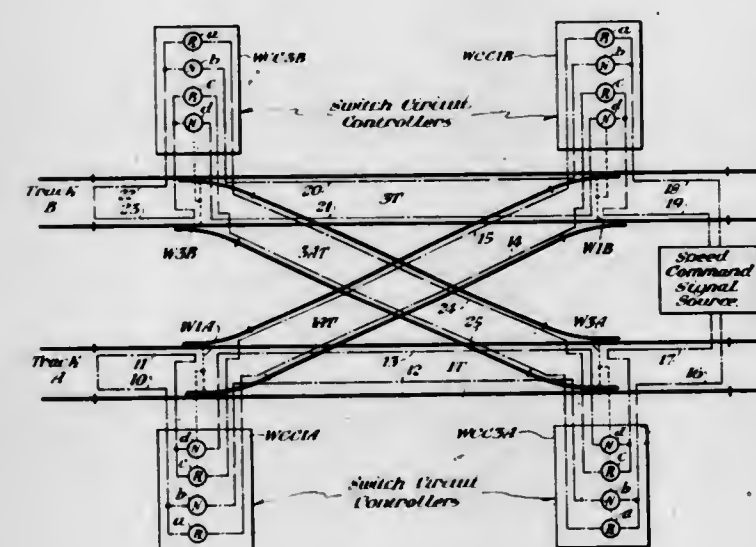
circuit receiver to each crossbond, the coupling being so balanced between tuned and rail circuit paths that each receiver is responsive only to received rail current and not to output of collocated transmitter. All transmitters have a common output frequency for train detection, with each being approach controlled to supply cab signal current which also resets the track circuits after passage of a train.

3,575,596 SIGNAL TRANSMISSION ARRANGEMENTS FOR RAILROAD INTERLOCKINGS

Philip R. Schatzel, Shaler Township, Allegheny Co., Pa., assignor to Westinghouse Air Brake Company, Swissvale, Pa.
Filed Mar. 19, 1969, Ser. No. 808,602
Int. Cl. B611 23/32

U.S. Cl. 246-114

7 Claims



A single wire is laid adjacent to each rail in each separate track section within a railroad interlocking. The wires in each section do not form a complete loop but rather are connected to contacts of the switch circuit controller associated with the track switch at each end of that section, specifically to those contacts which close when that section is included in an established route. When a route is established, the circuit controller contacts connect the wires of selected sections into a completed loop circuit parallel to the rails along that route. This loop circuit is supplied with speed command signals to which train carried speed control apparatus responds in the same manner as to signals transmitted conventionally through the rails.

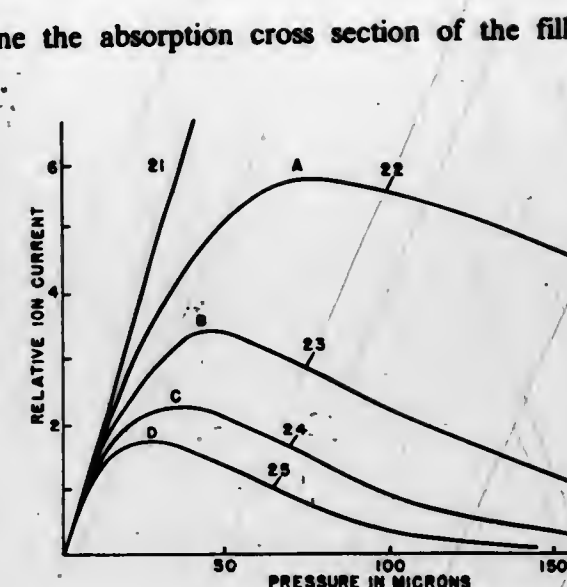
3,575,597 A MULTICHANNEL PHOTOIONIZATION CHAMBER FOR ABSORPTION ANALYSIS

Hongsuk H. Kim, Bedford, and Shardanand, Cambridge, Mass., assignors to The United States of America as represented by the Administrator of the National Aeronautics and Space Administration
Filed Apr. 1, 1969, Ser. No. 811,892
Int. Cl. G01t 1/18

U.S. Cl. 250-43.5

10 Claims

A multichannel photoionization chamber is disclosed for measuring absorption, photoionization yield and photoionization coefficients of gases. The chamber includes a plurality of ion collection plates which permit measurement of ion current ratios to determine whether the absorption cross section is independent of both pressure and path length; i.e., Beer's law is obeyed. Also disclosed are a plurality of pressure gauges for measuring chamber pressure at locations adjacent each of the collector plates. The pressure values corresponding to ion current maxima for each collector plate are used to



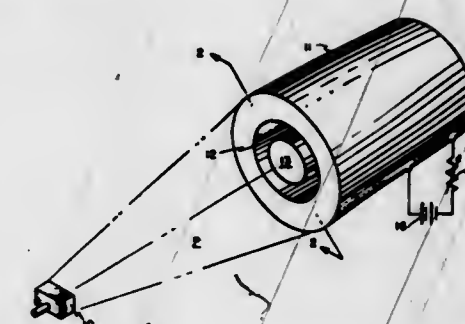
Identical values of cross section calculated in this way are another indication that Beer's law is obeyed.

3,575,598 PLASMA SIMULATION AND ANALYSIS APPARATUS AND METHOD

William Bernstein, Los Angeles; John Michael Sellen, Jr., Encino, and Howard S. Ogawa, Los Angeles, Calif., assignors to TRW Inc., Redondo Beach, Calif.
Filed Feb. 21, 1968, Ser. No. 707,054
Int. Cl. H01j 1/50, 37/26; H05h 1/00

U.S. Cl. 250-49.5

6 Claims



There is disclosed a method of interacting a plasma beam with a magnetic field and a preferred plasma simulation and analysis apparatus for carrying out said method comprising a source permitting a plasma beam to be controllably synthesized to have known characteristics and which can be directed to a region of interaction with a magnetic field. In order to eliminate boundary effects caused by polarization electric fields developed across the plasma density gradients at the plasma stream boundaries, the magnetic field is generated in a radial geometry. It is found that above a critical value of magnetic field, the electrons in the plasma beam are driven in annular orbit in the radial magnetic field and do not penetrate the field, whereas the positive ions traverse the field and impact on an electrostatic collector. The apparatus is such as to act as an electron deflector and to thus afford the possibility of generating a type of plasma behavior hitherto unavailable for observation and is also such as to be useful for simulating outer space ionosphere phenomena and conditions and for the creation of plasma stream phenomena for purposes of analytical study with a view to fusion techniques and the like.

3,575,599 RADIOGRAPHIC EXPOSURE CONTROL SCREEN FOR THE DEFINITION OF DETAIL OF BOTH HARD AND SOFT SUBSTANCE

Georg S. Mittelstaedt, 274 73rd St., Brooklyn, N.Y.
Filed Mar. 6, 1969, Ser. No. 804,931
Int. Cl. H01j 1/62

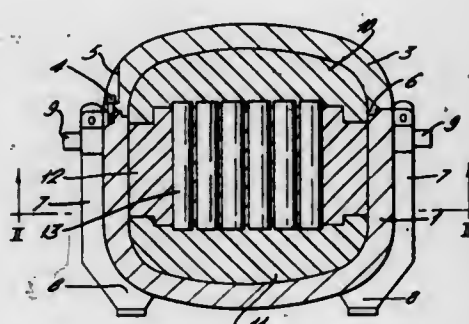
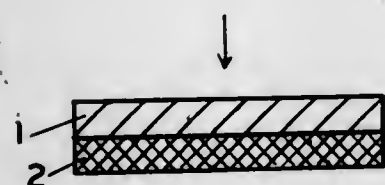
U.S. Cl. 250-80

2 Claims

The invention relates to a radiographic exposure control screen. It comprises a fluorescent layer and a visible light

opaque layer, and is characterized in that the fluorescent layer diminishes penetrating rays selectively.

The fluorescent layer has a low response value. Only the varied high intensity rays emanating from the thin object areas will cause fluorescence, and these strong rays will loose some of their intensity and energy in causing the fluorescence. The weakened rays will improve the definition



terfitted inner container constructed of a plurality of radioactive shielding inserts.

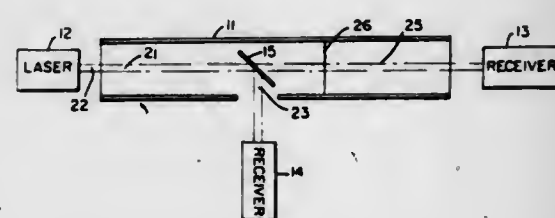
3,575,602 OPTICAL FREQUENCY WAVEGUIDE AND TRANSMISSION SYSTEM

Charles H. Townes, Cambridge; Raymond Y. Chiao, Boston, and Elsa M. Garmire, Cambridge, Mass., assignors to the United States of America as represented by the Administrator of the National Aeronautics and Space Administration
Original application Oct. 11, 1965, Ser. No. 494,739, now abandoned. Divided and this application Jan. 24, 1969, Ser. No. 822,090

Int. Cl. H04b 9/00

U.S. Cl. 250-199

9 Claims



An optical communication system is disclosed in which electromagnetic energy is communicated from a source to a receiver through a gastight structure filled with gas, such as carbon dioxide, at a selected pressure. The energy is of a first frequency and with a critical power value P_c so that the energy which passes through the gas is trapped in the form of a constant diameter beam. The energy also includes modulated electromagnetic energy at a critical power value less than P_c , but at a frequency higher than the first frequency, whereby the modulated energy is also trapped in the beam as it passes through the gas-filled structure.

3,575,603 TIME ERROR CONTROL FOR GENERATOR FREQUENCY GOVERNOR

David W. Schlicher, Minneapolis, Minn., assignor to Electric Machinery Mfg. Company, Minneapolis, Minn.
Filed Mar. 12, 1970, Ser. No. 18,864

Int. Cl. H02p 9/04

U.S. Cl. 290-40

8 Claims

A time error control operated continuously in conjunction with the frequency control of a power-driven alternating current generator to momentarily modify the performance of the frequency control to reduce the time error caused by variations in frequency between the system and standard, thus giving

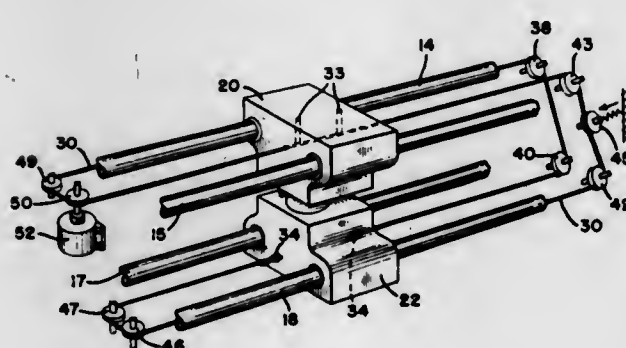
3,575,600 NUCLEONIC GAUGES WITH TRAVERSING HEADS, AND DRIVE THEREFOR

George J. Trachevski, and Juan H. Crawford, Dublin, Ohio, assignors to Industrial Nucleonics Corporation
Filed May 1, 1968, Ser. No. 725,636

Int. Cl. G01f 1/00, 7/00

U.S. Cl. 250-83

4 Claims



An enclosed O-bracket type traversing system for nucleonic or radioactive gauging apparatus includes a flexible tension member interconnected with the source and detector heads to form an endless loop for accurate maintenance of registration and alignment throughout the range of traversing movement.

3,575,601 TRANSPORT CONTAINERS FOR RADIOACTIVE MATERIALS

Graham Eades Lindsay, Harwell, Didcot, and Leslie Samuel Evans, Upper Basildon, Reading, England, assignors to United Kingdom Atomic Energy Authority, London, England

Filed Apr. 11, 1969, Ser. No. 817,263

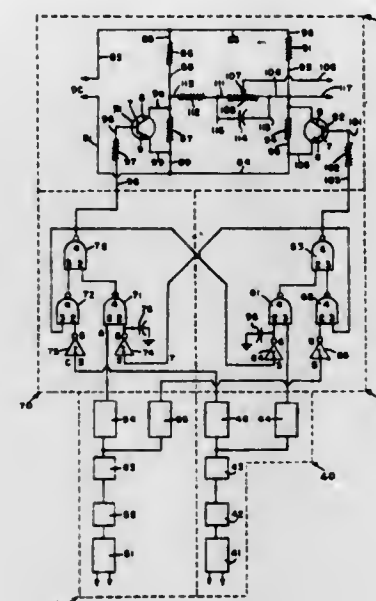
Int. Cl. G21f 1/00

U.S. Cl. 250-108

4 Claims

A container for the transportation of radioactive material, specifically, irradiated fuel elements. The transport container

ing accurate time at all times and within extremely close



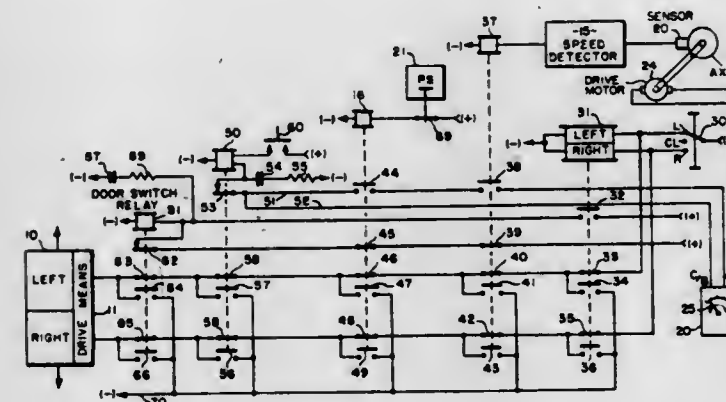
3,575,604 MOTION CONTROL ON DOORS OF RAPID TRANSIT CARS

Joseph H. Smith, Lynbrook, N.Y., assignor to General Signal Corporation, Rochester, N.Y.
Filed Sept. 17, 1969, Ser. No. 858,677

Int. Cl. H02j 1/00

U.S. Cl. 307-9

6 Claims



A vehicle door control system is provided for a rapid transit car. The door is actuated by a drive means in response to commands issued by a designating means. The motion of the vehicle is regulated by a power controller. The improved system includes vehicle function means for monitoring the various operational parameters of the vehicle and checking means responsive to the vehicle function means, the designating means and the power controller. The check means determines that the door of the car can be safely opened.

3,575,605 STATIC CONTROL RELAY

John P. Conner, Beaver, Pa., assignor to Westinghouse Electric Corporation, Pittsburgh, Pa.

Filed Jan. 15, 1970, Ser. No. 3,179

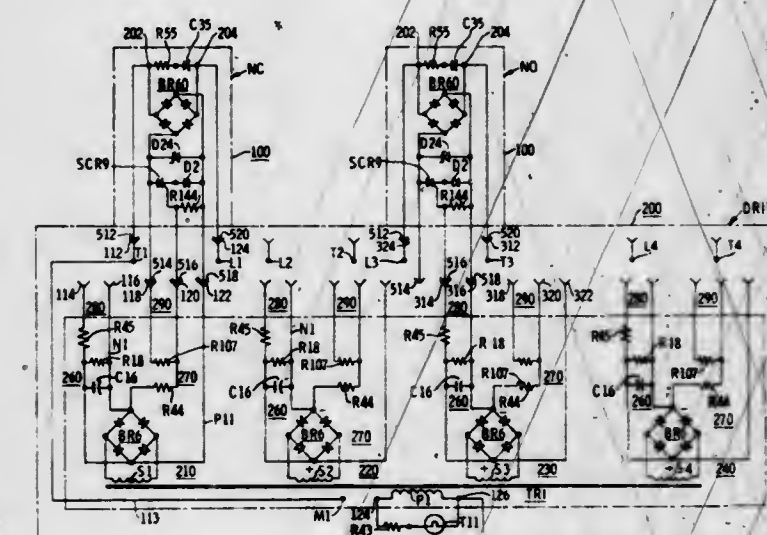
Int. Cl. H02j 3/00

U.S. Cl. 307-29

12 Claims

A static control relay comprising a base unit adapted to removably receive a plurality of pole units each including a semiconductor switching means actuable between substantially nonconducting and conducting conditions or states. The base unit includes first and second control circuits corresponding to each associated pole unit and is adapted to selectively receive and operatively connect each pole unit to

one of said control circuits. The semiconductor switching means of each pole unit is normally substantially nonconducting when the pole unit is operatively connected to the first control circuit through a plurality of contacts on said pole unit and a first set of terminals on the base unit and normally conducting when the pole unit is operatively connected



to the second control circuit through a plurality of contacts on the pole unit and a second set of terminals on the base unit which are adapted to selectively receive said pole unit. When the base unit is energized, each pole unit associated therewith is actuated from the normal operating condition or state to the opposite operating condition or state.

3,575,606 CONTROLLED RANDOM PULSE GENERATOR

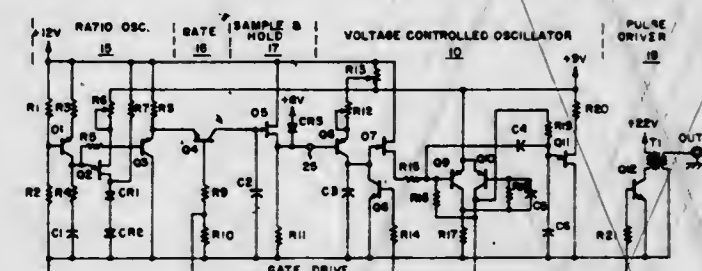
Robert E. Bledsoe, Miami, Fla., assignor to G B Instruments, Inc., Hollywood, Fla.

Filed Apr. 24, 1969, Ser. No. 818,982

Int. Cl. H03k 3/82

U.S. Cl. 307-106

6 Claims



A controlled random pulse generator which includes a variable-frequency voltage-controlled oscillator, a gate circuit for sampling the output signal of a ratio oscillator to produce a random amplitude voltage for controlling the pulse periodicity of the voltage-controlled oscillator. Circuit means are provided for controlling the minimum and maximum periods of the random output pulses.

3,575,607 ARRANGEMENT FOR INDICATING CHANGE OF STATE IN ONE OR SEVERAL BISTABLE ELEMENTS

Nils Herbert Edstrom, Vallingby, and Goran Anders Henrik Hemdal, Tyreso, Sweden, assignors to Telefonaktiebolaget L M Ericsson, Stockholm, Sweden

Filed Apr. 23, 1969, Ser. No. 818,764

Claims priority, application Sweden, May 28, 1968, 7091

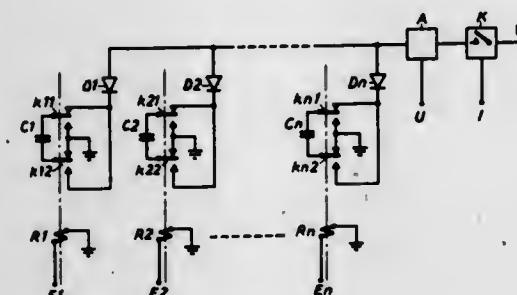
Int. Cl. H01h 47/00

U.S. Cl. 307-125

3 Claims

A circuit arrangement for indicating changes of state in one or several bistable elements, e.g. relays in the interval between two successive scanings of the elements. Each bistable element controls two make-and-break contacts, between which a capacitor is connected, a change of state of

the element implying that the polarity of the appertaining capacitor is reversed. This reversing changes the state of an indication arrangement which is subject to the scannings, a

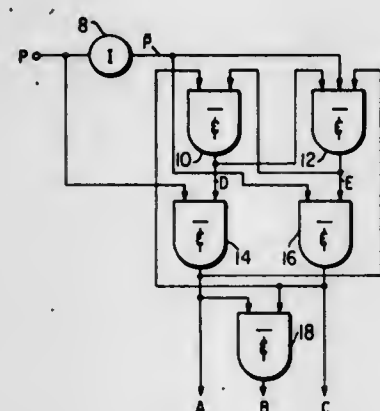


change of state of the indication arrangement being recorded upon a scanning indicating that one or several bistable elements have changed their states.

3,575,608
CIRCUIT FOR DETECTING A CHANGE IN VOLTAGE LEVEL IN EITHER SENSE
Donald John Barth, Bedford, Mass., assignor to RCA Corporation

Filed July 29, 1969, Ser. No. 845,855
Int. Cl. H03k 3/26, 19/34, 19/36
U.S. Cl. 307-215

4 Claims



First and second cross-coupled logic gates respectively connected to third and fourth logic gates, with feedback connections from the third to the second and the fourth to the first gate. The input voltage level whose change in value it is desired to sense is applied to the third gate and its complement is applied to the second and fourth gates. When this input voltage changes its value in one sense, an output pulse is produced by the third gate and when it changes its value in the opposite sense, an output pulse is produced by the fourth gate. The logic gates may be NAND or NOR gates.

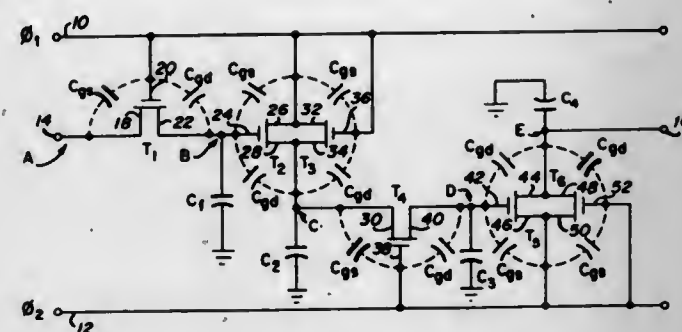
3,575,609
TWO-PHASE ULTRA-FAST MICROPPOWER DYNAMIC SHIFT REGISTER
Hideki Dan Izumi, San Jose, Calif., assignor to National Semiconductor Corp., Santa Clara, Calif.
Filed May 27, 1969, Ser. No. 828,246
Int. Cl. G11c 19/00

U.S. Cl. 307-221

10 Claims

A high-speed integrated circuit shift register cell utilizing six field-effect transistor devices and two clock phase inputs. The six transistor devices include two switching elements, two logic control elements and the respective clock inputs alternate to simultaneously provide a charging path and a ground path for respectively charging and discharging certain

PN junction capacitances in the circuit so as to cause an

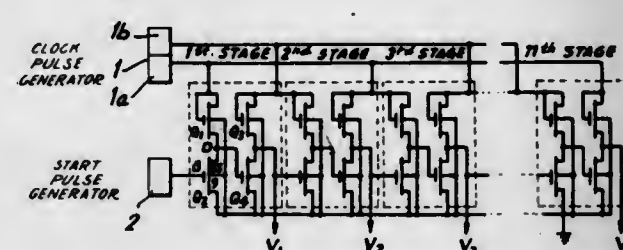


input digital data bit to transverse through the cell in a predetermined time interval.

3,575,610
SCANNING PULSE GENERATOR
Toshio Okubo, Tokyo, Japan, assignor to Nippon Electric Company, Limited, Tokyo, Japan
Filed Sept. 9, 1968, Ser. No. 758,507
Claims priority, application Japan, Sept. 20, 1967, 42/60386
Int. Cl. H03k 23/22, 5/00

U.S. Cl. 307-223

1 Claim

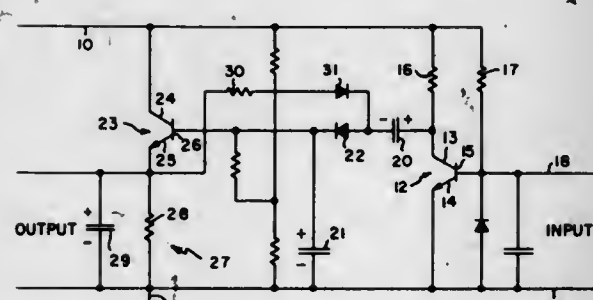


A device is described for generating a successive train of pulses on separate lines from a plurality of cascade-connected pulse generator stages. Each stage is composed of a pulse width expansion circuit driving a scanning pulse output circuit. A pair of square waves, one being the inversion of the other, is applied to each stage with one square wave being applied to the pulse width expansion circuit and the other to the scanning pulse output circuit. Each odd-numbered stage has its pulse width expansion circuit coupled to one square wave and its scanning pulse output circuit coupled to the other square wave. Each even-numbered stage has its circuit reversely connected to the square waves from the odd-numbered stages. Field effect transistors are employed to accomplish the pulse generation, thereby eliminating components such as resistors, capacitors and the like.

3,575,611
FREQUENCY TO DIRECT CURRENT CONVERTER
James R. Reed, Minneapolis, Minn., assignor to Honeywell Inc., Minneapolis, Minn.
Filed Aug. 8, 1969, Ser. No. 848,646
Int. Cl. H03b 3/04

U.S. Cl. 307-233

8 Claims



A first transistor is controlled by an alternating current input signal and is cyclically rendered conductive and non-

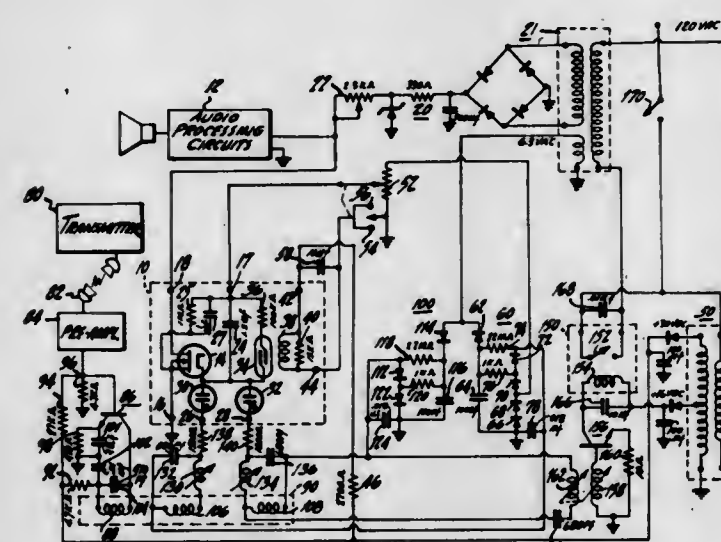
conductive in accordance with the frequency of the input signal. When the first transistor is nonconductive, a first and a second capacitor are charged by means of a series circuit including a first diode. A second transistor assumes a state of conduction in accordance with the charge of the second capacitor. When the first transistor is conductive, the first capacitor is discharged by means of a circuit including a second diode and the output of the second transistor. A direct current output is provided by the second transistor.

3,575,612
FET CONTROL SYSTEM EMPLOYING A STORAGE CAPACITOR AND SWITCHING TUBE MEANS
Lawrence M. Lunn, Indianapolis, Ind., assignor to RCA Corporation

Filed May 31, 1968, Ser. No. 733,548
Int. Cl. H03k 25/02

U.S. Cl. 307-238

10 Claims

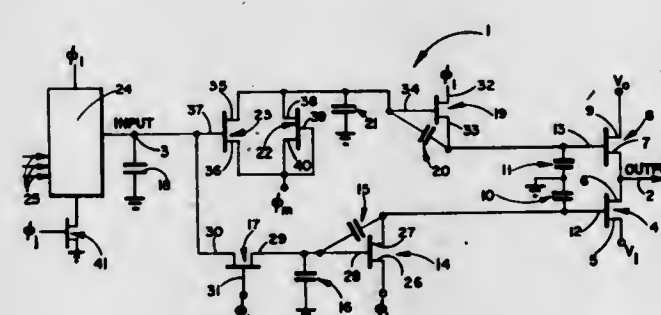


A field effect transistor control unit having a storage capacitor associated with its gate electrode and employing a switching tube circuit arrangement to improve the ability of the unit to retain the charge on the capacitor.

3,575,613
LOW POWER OUTPUT BUFFER CIRCUIT FOR MULTIPHASE SYSTEMS
Michel A. Ebertin, Yorba Linda, Calif., assignor to North American Rockwell Corporation
Filed Mar. 7, 1969, Ser. No. 805,305
Int. Cl. H03k 17/60

U.S. Cl. 307-242

7 Claims



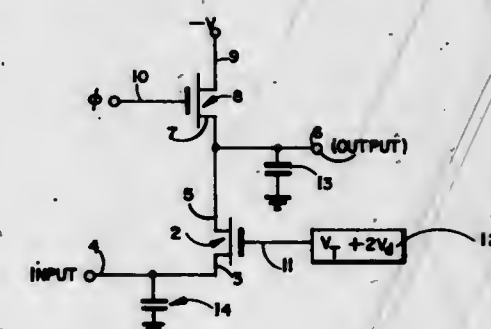
A first switching device is connected between an output terminal and a voltage potential representing a logic one state. A second switching device is connected between the output terminal and a voltage potential representing a logic zero state. The devices are conditionally turned on as a function of the logic state of the potential on an input terminal to the buffer circuit. If the input terminal is set to a logic zero state, one device is turned on to connect the logic zero potential to the output terminal. Similarly, if the input terminal is set to a logic one state, the other device is turned on

to connect the logic one potential to the output terminal. The switching devices never connect the voltage potentials to ground. As a result, excessive power dissipation is avoided.

3,575,614
LOW VOLTAGE LEVEL MOS INTERFACE CIRCUIT
Robert W. Polkinghorn, Huntington Beach, and Arthur F. Pfeiffer, Whittier, Calif., assignors to North American Rockwell Corporation
Filed Dec. 13, 1968, Ser. No. 783,603
Int. Cl. H03k 17/60

U.S. Cl. 307-251

9 Claims



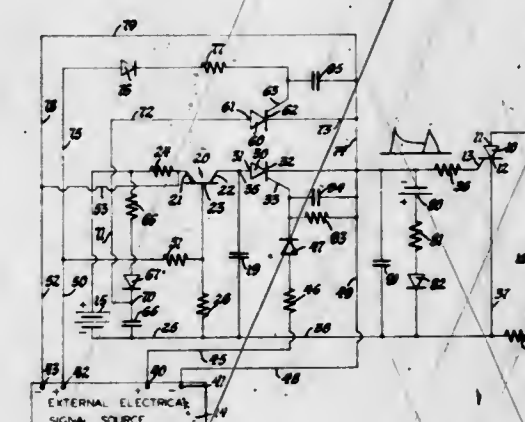
An input MOS device has its gate electrode connected to a network for biasing the gate slightly in excess of the threshold voltage for the device. The excess bias is not greater than the maximum anticipated interface signal level which appears on the input electrode of the device. A transistor is connected to the other electrode of the device for amplifying current from the device. A second MOS device is connected in series with the transistor and a voltage source.

When the input voltage is equal to or less than the excess bias voltage, the input device turns on for driving the transistor and for connecting the output electrode of the second device to ground through the transistor. When the input voltage is more than the excess bias voltage, the input device is turned off and the output electrode is driven to a usable MOS signal level.

3,575,615
FAST RISE ELECTRIC TRIGGER PULSE CIRCUIT
Elgin J. Karklins, Kettering, Ohio, assignor to General Motors Corporation, Detroit, Mich.
Filed Oct. 2, 1969, Ser. No. 863,190
Int. Cl. H03k 3/00, 17/00

U.S. Cl. 307-252

2 Claims



A fast rise electric trigger pulse circuit for producing a fast rise electric pulse for triggering a silicon controlled rectifier into an electrical load. A capacitor is connected across a source of direct current potential through the emitter-collector electrodes of a normally conducting transistor and across the gate-cathode electrodes of the power silicon controlled rectifier through the anode-cathode electrodes of a switching silicon controlled rectifier. A first externally generated electric signal triggers the switching silicon controlled rectifier

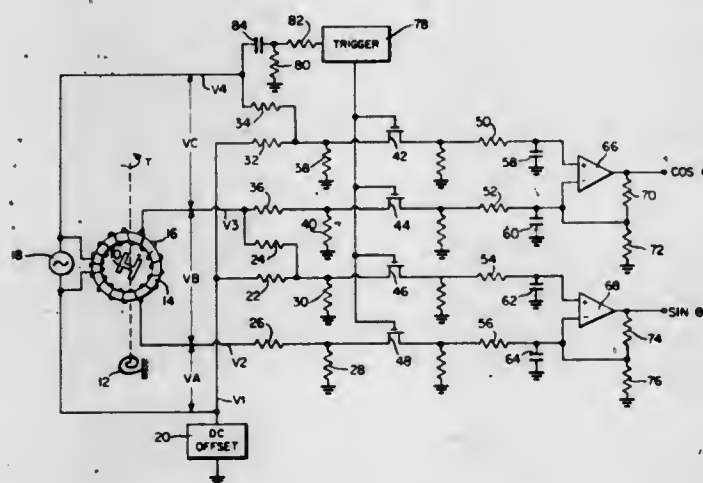
conductive through the anode-cathode electrodes thereof to complete a discharge circuit for the capacitor through the gate-cathode electrodes of the power silicon controlled rectifier to trigger this device conductive through the anode-cathode electrodes thereof. A second later, externally generated electric signal extinguishes the transistor for the duration thereof to interrupt the anode-cathode circuit of the switching silicon controlled rectifier thereby extinguishing this device and resetting the circuit for the next externally generated electric signal.

3,575,616 SIGNAL CONDITIONER

Harley D. Jordan, South Daytona, Fla., assignor to General Electric Company
Filed Dec. 31, 1968, Ser. No. 788,268
Int. Cl. H03k 5/00

U.S. Cl. 307-260

3 Claims



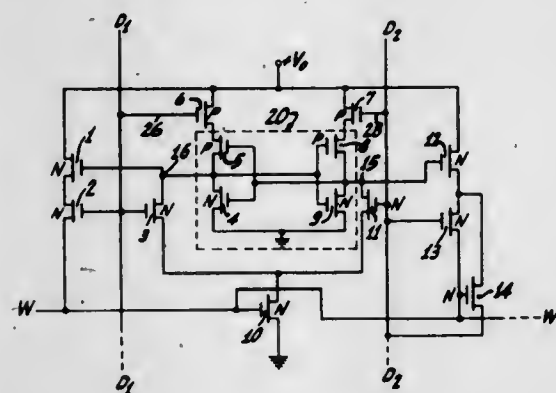
A signal from a synchro-type transducer having rotor angular position information in the second harmonic is applied to a signal conditioning circuit. A resistive summing network is used to add, and difference amplifiers to subtract, components of the currents. The currents are gated to the difference amplifiers at double the fundamental frequency resulting in DC voltage levels proportional to the mechanical orientation of the rotor.

3,575,617 FIELD EFFECT TRANSISTOR, CONTENT ADDRESSED MEMORY CELL

Joseph R. Burns, Trenton, N.J., assignor to RCA Corporation
Filed Dec. 27, 1968, Ser. No. 787,331
Int. Cl. H03k 3/26

U.S. Cl. 307-279

10 Claims



A field-effect transistor flip-flop and three lines coupled through other field effect transistors to the flip-flop for permitting information to be read from and written into the flip-flop nondestructively and for producing, in response to a voltage indicative of a tag bit applied to one of said lines, a signal indicative of a match or mismatch on another of said lines.

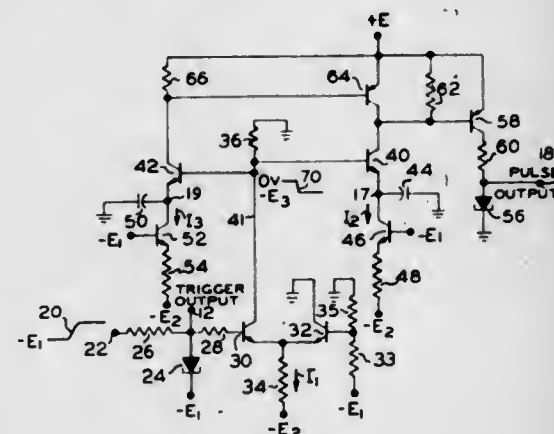
The invention described herein was made in the course of or under a contract or sub-contract thereunder with the Department of the Air Force.

3,575,618 APPARATUS FOR PROVIDING AN ACCURATELY DELAYED OUTPUT PULSE OF ACCURATELY PREDETERMINED DURATION

Frederick Y. Kawabata, Beaverton, Oreg., assignor to Tektronix, Inc., Beaverton, Oreg.
Filed July 24, 1968, Ser. No. 747,371
Int. Cl. H03k 17/28

U.S. Cl. 307-293

20 Claims



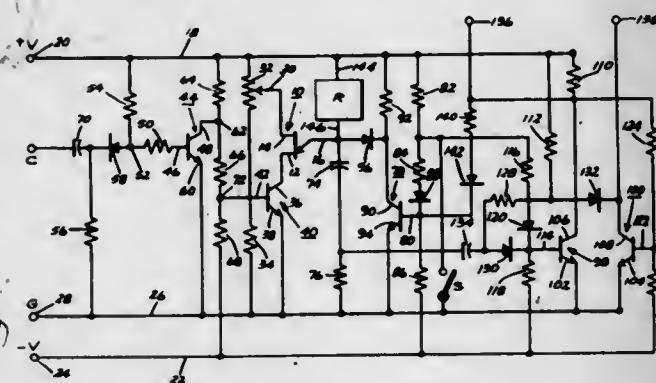
An input signal operates a tunnel diode and switches a pair of transistors from a conducting state to a cutoff condition. Each such transistor is provided a capacitor timing circuit coupled to its emitter electrode for restoring conduction in the transistor after a predetermined time, such time period being different for each transistor. The output of each transistor is coupled to an output circuit including a tunnel diode, and when the first of said transistors returns to conduction, the output tunnel diode is triggered. When the second of the transistors returns to a conducting condition, the output circuit is inhibited whereby the tunnel diode output is concluded.

3,575,619 DUAL INPUT ELECTRONIC TIMING CIRCUIT WITH RESISTOR TAP SWITCHING CIRCUIT

Gerald F. Frank, Normal, Ill., assignor to General Electric Company
Filed Sept. 23, 1968, Ser. No. 761,733
Int. Cl. H03k 17/28

U.S. Cl. 307-293

4 Claims



An RC timer circuit which is responsive to dual inputs so as to provide an output at a predetermined time interval after a first input and then only upon the occurrence of a second input. The emitter voltage of a unijunction transistor, conduction of which provides the timer output, is provided by an RC timing circuit in which charging of the capacitor begins upon the occurrence of a first input, and which capacitor provides an emitter voltage sufficient to cause conduction of the unijunction transistor after a predetermined time interval.

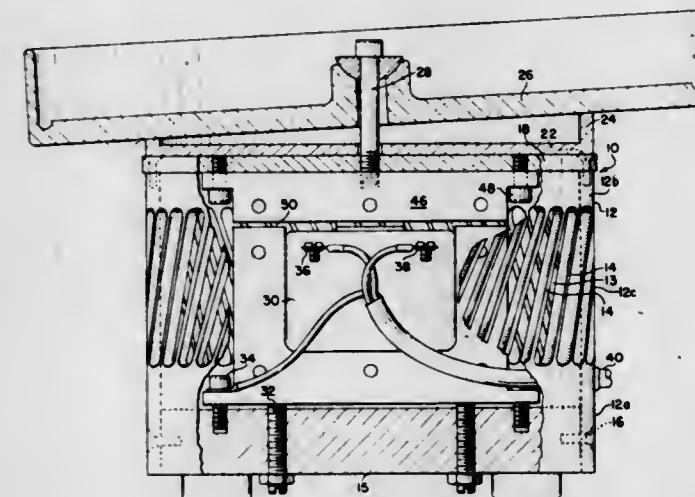
However, an interbase voltage sufficient to permit conduction of the unijunction transistor is supplied only when a transistor connected in series with the first base of the unijunction transistor is caused to conduct upon the occurrence of a second input.

3,575,620 VIBRATORY DRIVE UNIT

Denver Braden, San Diego, Calif., assignor to Illinois Tool Works Inc., Chicago, Ill.
Filed Mar. 18, 1970, Ser. No. 20,765
Int. Cl. H02k 33/02

U.S. Cl. 310-29

7 Claims



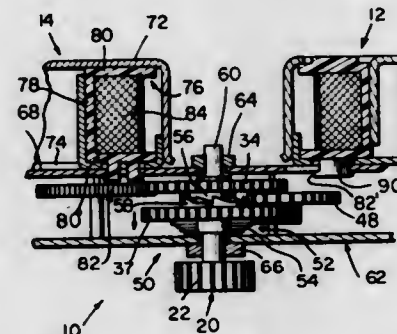
Drive unit for vibratory part feeder utilizes a tubular cylinder as both a protective case for the unit to enclose an electromagnetic coil, and also, by angularly slotting the cylinder completely around its periphery, as a spring which cooperates with the electromagnetic coil to provide a vibratory feeding motion to parts placed in a feeder bowl which may be attached to the drive unit.

3,575,621 DRIVE MEANS FOR APPLIANCE CONTROL MEANS

Elmo W. Volland; Benjamin F. Chestnut; Peter H. Gerhardt, and Richard E. Pervorse, Indianapolis, Ind., assignors to P. R. Mallory & Co., Inc., Indianapolis, Ind.

U.S. Cl. 310-112

12 Claims



At least two motor drive means drives a control means for an appliance, each of the motor drive means including a speed reducing means coupled to a common output means which in turn is coupled to the control means.

3,575,622 ROTOR RESISTOR ASSEMBLY FOR AC INDUCTION MOTORS

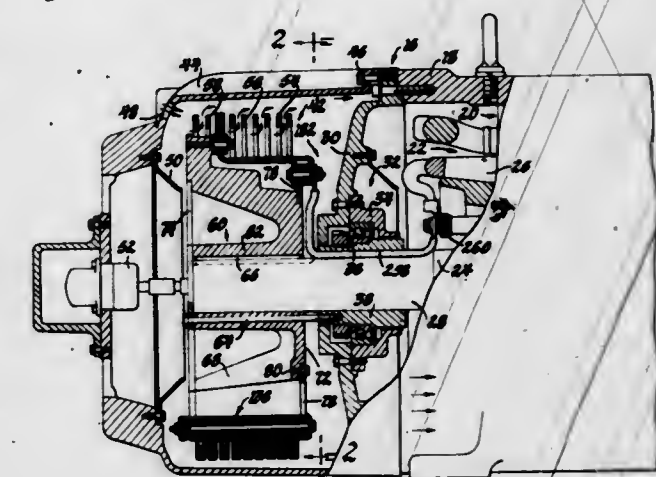
James W. Nielson, Kettering, and Virgil W. Raby, Dayton, Ohio, assignors to General Motors Corporation, Detroit, Mich.

U.S. Cl. 310-166

6 Claims

A rotor resistor assembly for a wound rotor induction motor includes resistors formed by metal bars which are

wound in circular coils extending circumferentially around the rotor shaft. The resistors are mounted on the rotor shaft by a support member which includes pivotal linkages movably connecting the resistors to the support member. The resistors respectively expand and contract radially when



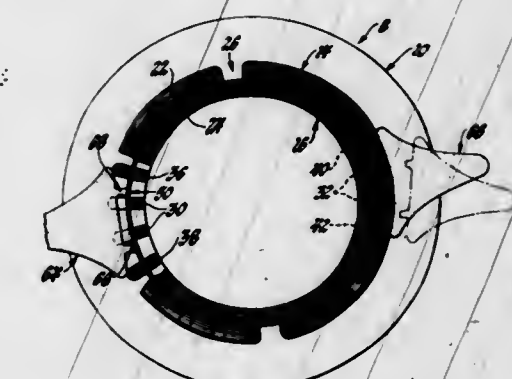
heated and cooled and a counterweight included in the pivotal linkages maintains radial tension on the coiled bar resistors when the assembly is rotated at high speeds. A fan impeller arrangement extending from the support member circulates cooling air through the resistors.

3,575,623 WINDING END TURN INSULATOR FOR A DYNAMOELECTRIC MACHINE

Bradley K. Stine, Xenia, Ohio, assignor to General Motors Corporation, Detroit, Mich.
Filed Feb. 2, 1970, Ser. No. 7,629
Int. Cl. H02k 3/38

U.S. Cl. 310-260

5 Claims



In a preferred form, a winding end turn insulator provides an insulating barrier between the end turns of two windings extending from the ends of a stator of a dynamoelectric machine. The insulator is formed of a flexible sheet insulation material and includes a body portion having integral locking tabs extending from one side thereof. The ends of the body portion are overlapped to form a circular collar capable of covering the inside diameter of one group of the end turns. The locking tabs extend radially and are engaged by an outer diameter of the end turns so that the body portion is held in place while the other winding is assembled to the stator.

3,575,624 WIRE WOUND DISC ARMATURE

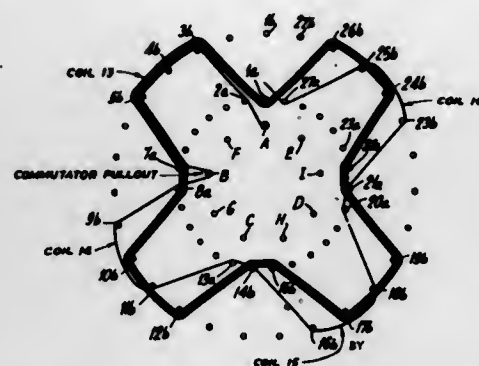
Raymond J. Keogh, Huntington, N.Y., assignor to Photocircuits Corporation, Glen Cove, N.Y.
Continuation of application Ser. No. 620,306, Mar. 3, 1967, now abandoned. This application Nov. 10, 1969, Ser. No. 871,586
Int. Cl. H02k 1/22

U.S. Cl. 310-268

10 Claims

A wire wound motor armature constructed by forming successive groups of single turn armature coils, the coils within

each group being in registry with one another, the groups



being indexed relative to one another, and all coils being interconnected in a wave configuration.

3,575,625

COLOR TUBE WITH CONVERGENCE ELECTRODE MOUNTING AND CONNECTING STRUCTURE
Senri Miyaoka, Kanagawa-ken, Japan, assignor to Sony Corporation, Shinagawa-ku, Tokyo, Japan

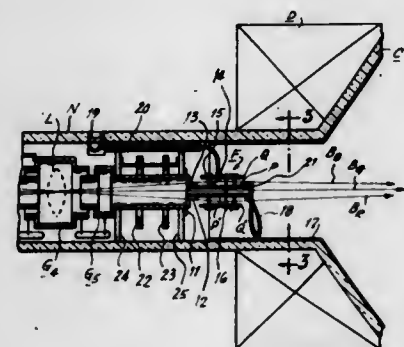
Filed Apr. 7, 1969, Ser. No. 813,938

Claims priority, application Japan, Apr. 13, 1968, 43/24621

Int. Cl. H01J 29/56, 29/82, 29/74

U.S. Cl. 313-78

5 Claims



In a single-gun, plural-beam color picture tube in which two beams emerge from a focusing lens along paths that diverge with respect to a central beam emerging along the optical axis of the lens by which all of the beams are focused on the color screen, and the divergent beams are deflected to converge with the central beam by passage through respective electrical fields established between first spaced plates, at opposite sides of the central beam path, and second plates spaced outwardly from the first plates; such plates are disposed closely adjacent to the main deflection yoke by which the beams are made to scan the screen so that the length of the tube can be minimized, and the misconvergence of the beams that would result from a current flow induced in a closed conductive loop that includes the first plates by flux change of the magnetic field of the main deflection yoke is avoided by mounting the first plates in a cantilevered manner at one end and by omitting any conductive connections between the remainder of such plates so that a conductive loop does not exist for the induced current.

3,575,626

ELECTRODE MOUNTING BRACKETS PRODUCING SHORTER ELECTRON GUN MOUNTS IN CATHODE-RAY TUBES

Hurst H. Blumenberg, Owensboro, Ky., assignor to Kentucky Electronics, Inc., Owensboro, Ky.

Filed Sept. 5, 1968, Ser. No. 757,640

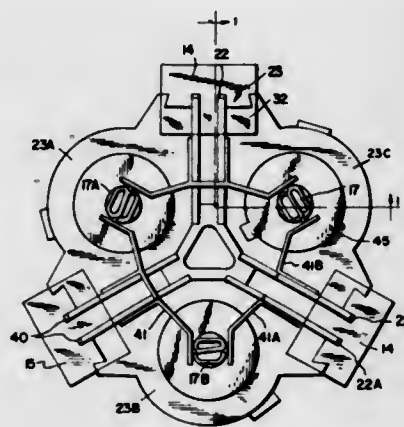
Int. Cl. H01J 29/02, 1/88, 1/42

U.S. Cl. 313-82

5 Claims

An electrode holding plate is provided for retaining a cathode sleeve or the like having arms for mounting into a glass bead support member with component members which

extend in the glass bead in two directions generally normal to and axially with the electron beam path comprising a bent over substantially L-shaped terminal flange. By establishing the primary bracket dimension normal to the beam, a very



short mounting space in the glass bead is permitted to thereby foreshorten the electron gun mounting space and the neck of the tube without decreasing mounting stability or permitting tilt and change under thermal stresses of critical parts affecting cathode-to-grid spacing and orientation.

3,575,627

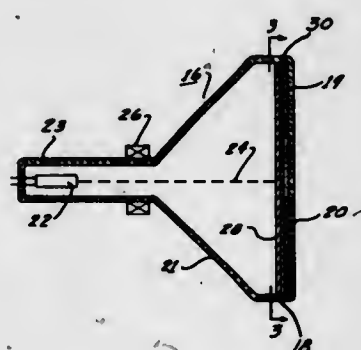
CATHODE-RAY TUBE WITH SCREEN COMPRISING LASER CRYSTALS
Frederick H. Nicoll, Princeton, N.J., assignor to RCA Corporation

Filed Dec. 29, 1967, Ser. No. 694,666

Int. Cl. H01J 29/32; H01s 3/00

U.S. Cl. 313-92

15 Claims



A cathode-ray tube has a screen comprising an array of laser crystals, in which the individual laser crystals emit coherent light in a narrow disklike beam when excited by an electron beam.

3,575,628

TRANSMISSIVE PHOTOCATHODE AND DEVICES UTILIZING THE SAME

James C. Word, IV, Glen Burnie, Md., assignor to Westinghouse Electric Corporation, Pittsburgh, Pa.

Filed Nov. 26, 1968; Ser. No. 779,076

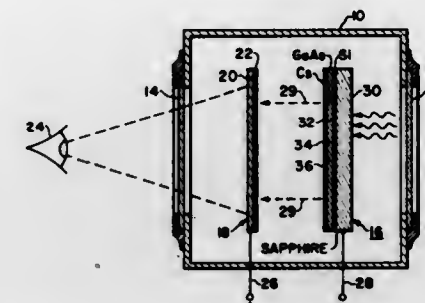
Int. Cl. H01J 39/18, 31/50

U.S. Cl. 313-95

9 Claims

Described are transmissive gallium arsenide photocathodes, and optical devices utilizing the same, comprising gallium arsenide epitaxially deposited on a layer of silicon, the gallium arsenide having absorbed into its surface electropositive metal atoms, preferably cesium. In one embodiment of the invention, the gallium arsenide is deposited on a silicon film epitaxially deposited on a transparent sap-

phire substrate; while in another embodiment, the gallium ar-



senide is deposited on a thin silicon web having a thickness in the range of about 10 to 25 microns.

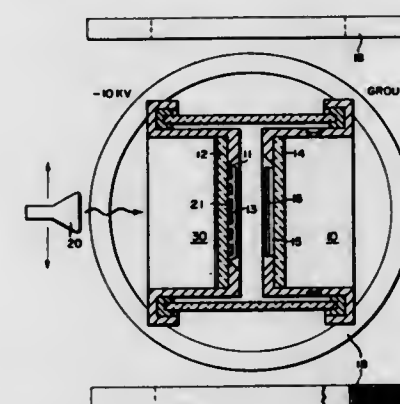
3,575,629

MULTIPLE CONDENSING LENS ARRAY FOR CONCENTRATING ENERGY ON A PLURALITY OF ELECTRON BEAM SOURCES OF A PHOTOCATHODE
Terence W. O'Keeffe, Pittsburgh, Pa., and Charles H. Church, Alexandria, Va., assignors to Westinghouse Electric Corporation, Pittsburgh, Pa.

Filed Dec. 18, 1968, Ser. No. 784,763

Int. Cl. H01J 39/06, 39/16

U.S. Cl. 313-95



The invention is an array of condensing lenses for use in image tube pattern fabricating applications to provide selective and intensive illuminations of individual electron emitting sources of a multiple electron beam photocathode source.

3,575,630

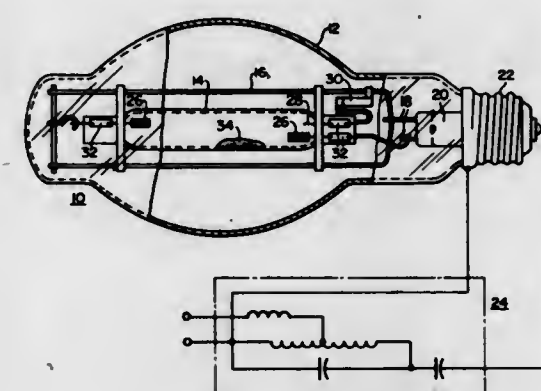
HIGH PRESSURE MERCURY VAPOR DISCHARGE LAMP CONTAINING ZIRCONIUM IODIDE
Charles R. Edris, Nutley, N.J., assignor to Westinghouse Electric Corporation, Pittsburgh, Pa.

Filed May 15, 1968, Ser. No. 729,179

Int. Cl. H01J 61/18

U.S. Cl. 313-229

2 Claims



A high pressure mercury vapor (HPMV) discharge lamp of the additive type having a discharge sustaining filling which

includes mercury from about 2.0 to 4.0 milligrams per cubic centimeter of arc tube volume, thallium iodide and sodium iodide in a combined amount of from about 1.0 to 2.5 milligrams per cubic centimeter of arc volume, zirconium iodide in an amount of about .03 to 0.3 milligrams per cubic centimeter of arc tube volume and a small quantity of inert ionizable starting gas whereby upon operation of the lamp a spectral distribution is produced which includes in addition to the sodium and thallium peaks a substantial continuum from the blue to the red.

3,575,631

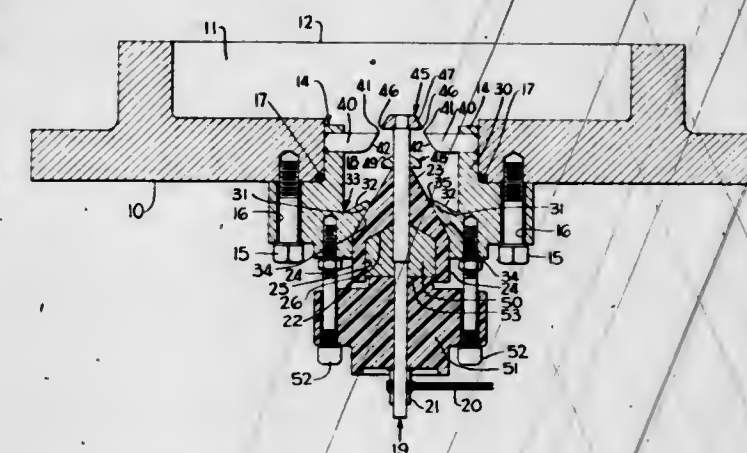
ELECTRODE FOR ELECTRO-HYDRAULIC HIGH-ENERGY-RATE METAL FORMING
Lawrence W. Pratt, Amherst, N.Y., assignor to Niagara Machine & Tool Works, Buffalo, N.Y.

Filed Mar. 15, 1969, Ser. No. 807,571

Int. Cl. H01J 7/00

U.S. Cl. 313-232

15 Claims



An electrode adapted for use in an electrohydraulic system in which kinetic forces are developed by means of a submerged electrical discharge. An elongated electrode extends axially toward a body of hydraulic fluid and axially through a chamber defined by an annular conducting member and a generally conical insulator. A plurality of arc-initiating members extend radially inwardly from the annular member. The elongated electrode includes a first arc-initiating enlargement and a second, axially-spaced enlargement which acts as a shield for the insulator, the enlargements being disposed axially at opposite sides of the arc-initiating electrodes.

3,575,632

COOLING ARRANGEMENT FOR MAGNETRON
Yoshio Kato, Minoo-shi, and Yasuo Ishida, Hirakata-shi, Japan, assignors to Matsushita Electronics Corporation, Osaka, Japan

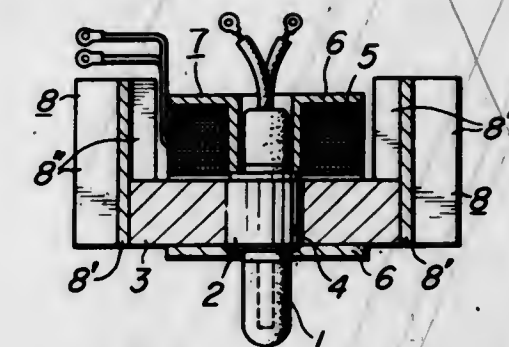
Filed Sept. 6, 1968, Ser. No. 757,901

Claims priority, application Japan, Sept. 7, 1967, 42/57759

Int. Cl. H01J 7/26; H05b 9/06

U.S. Cl. 315-32

5 Claims



A magnetron device composed by improving the medium or large size magnetron device having an output power of the

order of 500 watts in ultrahigh frequency, which comprises as cooling means an assembly of a natural air-cooled type radiator formed of aluminum or alloy thereof and which, accordingly, does not necessitate the cooling means like blowers provided to conventional devices. Said device has such advantages that noise is eliminated during operation and that it is light and compact and therefore it is particularly suitable for a domestic-use microwave range.

3,575,633

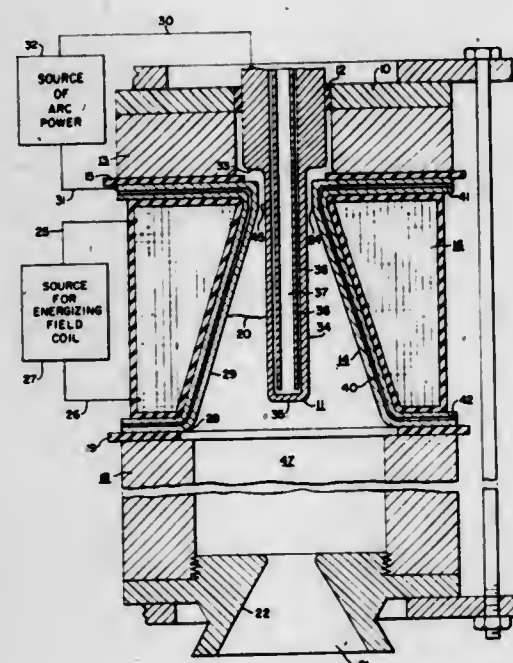
ARC HEATER HAVING A SPIRALLY ROTATING ARC
Kue H. Yoon, Pittsburgh, and Charles B. Wolf, Irwin, Pa., assignors to Westinghouse Electric Corporation, Pittsburgh, Pa.

Filed Oct. 1, 1968, Ser. No. 764,090

Int. Cl. H01j 1/50, 7/24; H05b 1/00

U.S. Cl. 315-111

12 Claims



An arc heater has two radially spaced axially coincident electrodes providing a radially extending arc path. One of the electrodes has an arcing surface tapering in diameter, or frustoconical in shape, whereby the arc path increases in length from the upstream ends of the electrodes to the downstream ends thereof. An arc initiated at the minimum gap, which is at the upstream end, is blasted toward the downstream direction due in part to an azimuthal magnetic field produced by a portion of the current path in the inner electrode which is substantially at a 90° angle with respect to the longitudinal axis of the inner electrode, but the arc is moved downstream primarily by a "Jacob's ladder" effect in which current paths in the electrodes set up magnetic fields which are vectorially added to the magnetic field set up by the arc current in the arc itself, on the upper side only, with a resulting force on the arc which moves it down the electrodes, and the arc path is rotated around the inner electrode by an externally applied direct current axial magnetic field, the combined effects producing a spiral pattern of movement for the arc.

3,575,634

LUMINESCENT DISPLAY DEVICE

Tadao Kohashi, Yokohama, Japan, assignor to Matsushita Electric Industrial Co. Ltd., Osaka, Japan

Filed Jan. 25, 1968, Ser. No. 700,508

Claims priority, application Japan, Jan. 30, 1967, 42/6849

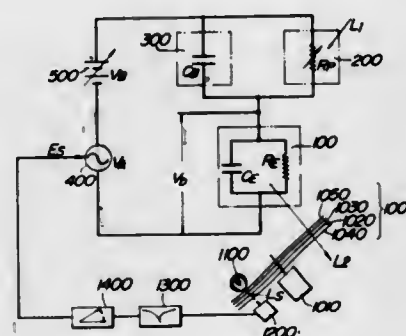
Int. Cl. H05b 37/00

U.S. Cl. 315-169

6 Claims

A luminescent display device comprising an electroluminescent element; an energy-responsive element (for example, a photoelectroconductive element) connected in series to said electroluminescent element so that said energy-responsive element controls the bias voltage to said electrolu-

minescent element in response to input energy, thereby controlling the luminescent output from said device; and means



for selectively separating a portion of the wave form of the luminescent output, thereby to increase the sensitivity of said device and to make the luminescent output controllable.

3,575,635

MAGNETIC ARC BLOWOUT DEVICE

Ernesto Maggi, Viale Vittorio Emanuel 69, Bergamo, Italy

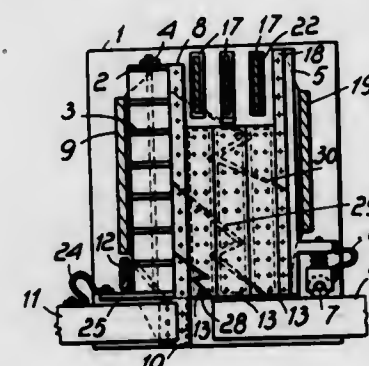
Filed Sept. 9, 1968, Ser. No. 758,307

Claims priority, application Italy, Sept. 9, 1967, 20298A/67

Int. Cl. H01h 33/18; H02h 7/00

U.S. Cl. 317-11

10 Claims



Device for blowing out the arc struck between the contacts of electric switching devices, utilizing magnetic fields for the removal of the arc from the contact gap, and comprising, in combination with the magnetic means, at least one electric resistor, located outside of the extinction chamber proper and in such a manner as to be progressively inserted into the electric circuit that is connected with the contacts, due to the shifting of the related end of the arc length along the contact resistor(s), while the arc is being removed from the contact gap.

3,575,636

PROTECTING DEVICE FOR ROTATING MACHINES

Michel Edmond Etienne, Nantes, and Fernand F. Nouvion, Fontenay-le-Fleury, France, assignors to Etablissements Brissonneau et Lotz, Paris, France

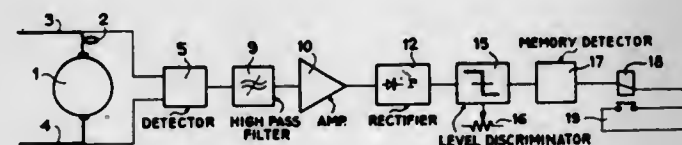
Filed Aug. 13, 1968, Ser. No. 752,276

Claims priority, application France, Jan. 2, 1968, 134,533

Int. Cl. H02h 7/06

U.S. Cl. 317-13

10 Claims



Device for protecting a rotating electric machine having a collector against short circuits. The device comprises a detector connected to the terminals of the armature or the as-

sembly comprising the armature and the auxiliary poles of said machine, a filter for separating the damped electric oscillations from electric disturbances created by the elements of the machine, a level discriminator for producing a logic signal when the frequency of the damped oscillations exceeds a given value, and a circuit controlling the supply of said machine.

3,575,637

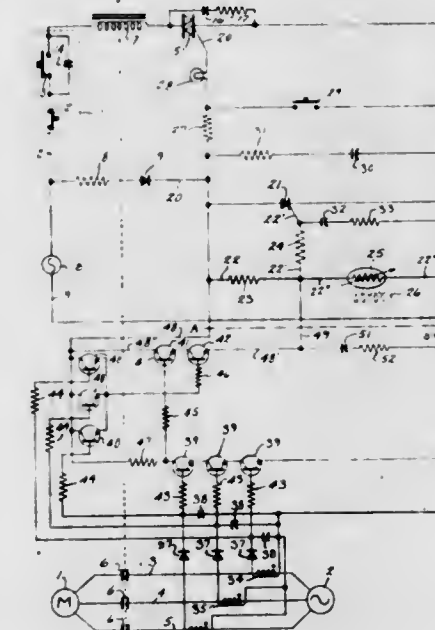
GATE-CONTROLLED PHASE FAILURE PROTECTION CIRCUIT

Roland L. Krieger, and Gary J. Driman, Milwaukee, Wis., assignors to Allen-Bradley Company, Milwaukee, Wis.

Filed June 9, 1969, Ser. No. 831,582

Int. Cl. H02h 7/09

U.S. Cl. 317-13



A protective circuit for a polyphase load includes a bypass device which, when actuated, serves to open the load circuit and a trigger circuit for the bypass device. A phase failure-responsive control gate for the trigger circuit includes an exclusive OR gate interposed in the trigger circuit and separate signal transformers, one associated with each of the phases to provide a signal when the associated phase is operative, the transformers serving as inputs to the exclusive OR gate. Because of the exclusive OR gate an actuating signal is provided by the trigger circuit for the bypass device when less than all of the phases are operative but not when none or all of them are operative.

3,575,638

STORAGE CONTAINER FOR ELECTRONIC DEVICES

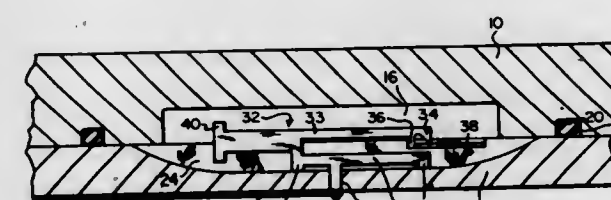
George L. Filip, Madison, Ala. assignor to the United States of America as represented by the Administrator of the National Aeronautics and Space Administration

Filed June 20, 1969, Ser. No. 835,059

Int. Cl. H05k 1/04

U.S. Cl. 317-101

6 Claims



A sealed storage container for channel carriers having miniature electronic components mounted thereon. The container includes a base and a cover, and the base has several groups of three closely spaced slots cut therein; each group

of slots receiving a channel carrier. Each slot has a spring conductor mounted therein that includes an elongated member terminating at one end in a point and at the other end in a tab. The spring conductor has a post extending from about the middle thereof that passes through the base and is soldered to one of a number of printed circuit paths on the outside of the base. The printed circuit paths extend to one side of the base member to form a male plug portion that makes it possible to plug the storage container into an instrument and perform electrical tests on the component while the channel carrier is sealed in the storage container.

3,575,639

TIME DELAY CIRCUIT ADAPTED FOR USE IN A POWER CONTROL SYSTEM

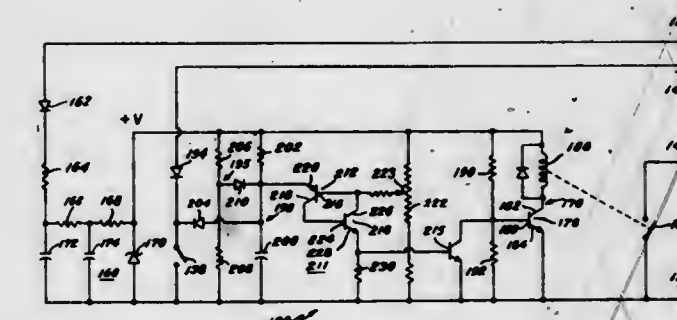
Richard F. Shaw, North Attleboro, Mass., and Fred E. Nelson, Cranston, R.I., assignors to Texas Instruments, Incorporated, Dallas, Tex.

Filed Apr. 21, 1969, Ser. No. 817,756

Int. Cl. H01h 47/18

U.S. Cl. 317-141S

6 Claims



The disclosed circuit includes an interconnected resistor capacitor time delay network having a preselected time constant. A pedestal network for establishing a preset voltage across the capacitor is coupled to the time delay network to establish the preset voltage across the capacitor at the initiation of a charging cycle. The capacitor is charged in response to the initiation of a control signal to a preselected voltage level. A voltage sensitive switch means is coupled to the capacitor, and is maintained nonconductive by an adjustable bias network until the preselected voltage level appears across the capacitor whereupon the voltage sensitive switch means is rendered conductive so as to provide a discharge path for the capacitor. The time interval required for charging the capacitor to the preselected voltage level is dependent upon the voltage set by the bias network. A current responsive switch means is coupled to the voltage sensitive means and to the capacitor discharge path in order to provide an output signal in response to the discharge of the capacitor. Control of the conduction of an output switch means coupled to the load is effected by the output signal, thereby controlling the power supplied to the load.

3,575,640

AUTOMATIC WATER SUPPLY SYSTEM

Tadayuki Ishikawa, Kyoto, Japan, assignor to Omron Tateisi Electronics Co., Kyoto, Japan

Filed Nov. 20, 1968, Ser. No. 777,253

Claims priority, application Japan, Nov. 27, 1967, 42-76312

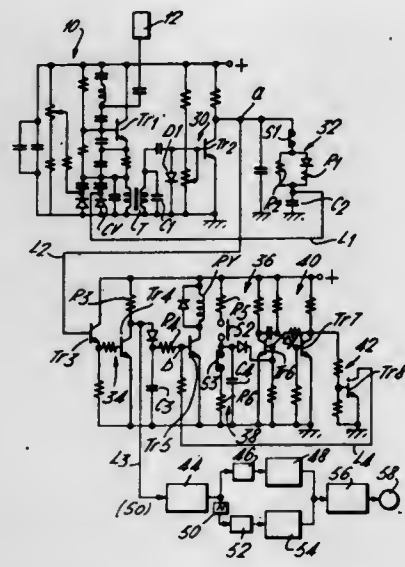
Int. Cl. H01h 47/12

U.S. Cl. 317-146

8 Claims

An automatic water supply control system for a toilet facility, wash basin or the like which features a capacity-sensitive antenna positioned to sense the approach of a user and cause a valve actuator signal to be produced, coupled with a circuit for compensating for slow changes in antenna capacity caused by changes in ambient conditions, such as humidity.

ty. The system includes timing and delay circuitry which permit the system to allow for minor movements of the user adjacent to the facility and to shut off after a predetermined period of operation.



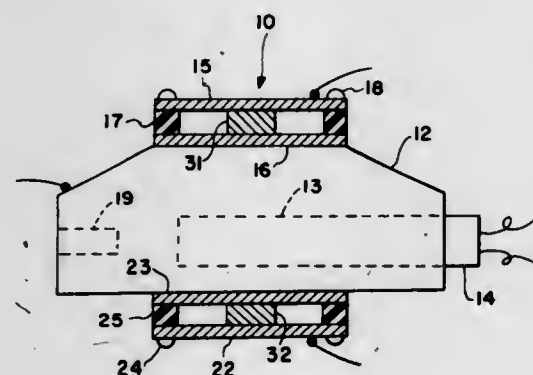
3,575,641

PRECIPITATION DETECTOR

Harold R. Long, Hampton; Martin J. Menges, Seaford, and Samuel W. Mugler, Hampton, Va., assignors to the United States of America as represented by the Administration of the National Aeronautics and Space Administration
Filed Feb. 5, 1969, Ser. No. 796,691
Int. Cl. H01h 47/36

U.S. Cl. 317-153

2 Claims



A precipitation detector and mechanism used to shut down a load during precipitation and activate a load upon completion of precipitation. The detector has thermistors in a bridge circuit. One of the thermistors is exposed to the elements and cooled upon being contacted with precipitation. This causes an imbalance in the bridge circuit the output of which actuates a relay that shuts down the load. Termination of precipitation allows the thermistor to warm up balancing the bridge circuit and the relay closes activating the load.

3,575,642

ELECTROPNEUMATIC CONTROL SYSTEM AND CIRCUIT MEANS AND VALVE MEANS THEREFOR OR THE LIKE

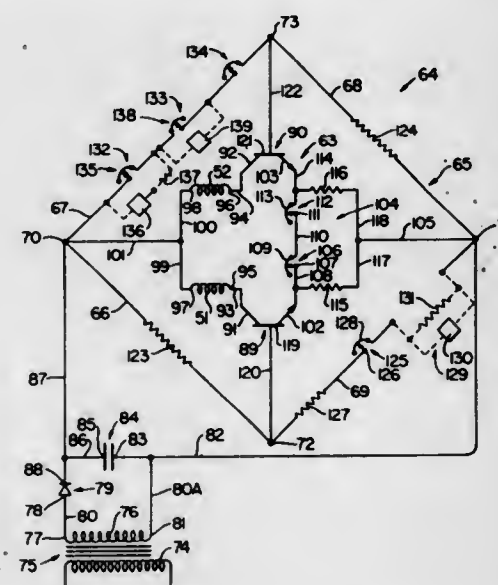
Louis M. Puster, Knoxville; Harold G. Brakebill, Concord, and Frank Payne, Knoxville, Tenn., assignors to Robertshaw Controls Company, Richmond, Va.
Filed Apr. 14, 1969, Ser. No. 815,876
Int. Cl. F16k 31/02; H01h 47/36

U.S. Cl. 317-153

12 Claims

A valve means for interconnecting a pneumatic source to a pneumatically controlled device in relation to a pneumatic condition in a pilot chamber of the valve means that has a leak port controlled by a flapper valve member having an ad-

mate portion thereof responsive to the current flow through two electrical coils disposed on opposite sides thereof and respectively forming collector resistors for an



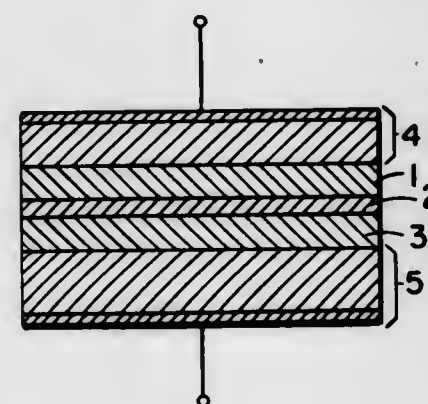
3,575,643

SEMICONDUCTOR HIGH FREQUENCY OSCILLATOR DEVICE

Michihisa Suga, and Kenji Sekido, Tokyo, Japan, assignors to Nippon Electric Company, Limited, Tokyo, Japan
Filed Mar. 11, 1969, Ser. No. 806,198
Claims priority, application Japan, Mar. 12, 1968, 43/16304
Int. Cl. H01l 9/00

U.S. Cl. 317-234

5 Claims



An improved efficiency semiconductor high frequency oscillator comprises semiconductor regions located between two ohmic electrodes. The impurity concentration is nonuniform throughout the regions, and as herein specifically described, the impurity concentration may be greatest in an intermediate one of the regions.

3,575,644

SEMICONDUCTOR DEVICE WITH DOUBLE POSITIVE BEVEL

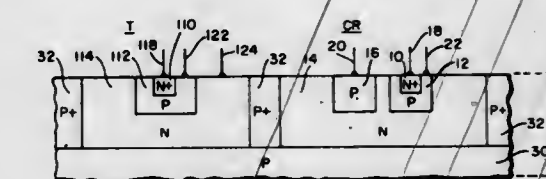
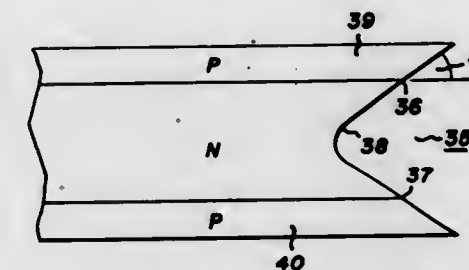
Gerald C. Huth, Malvern, Pa., and Robert L. Davies, Auburn, N.Y., assignors to General Electric Company
Original application Jan. 30, 1963, Ser. No. 255,037, now Patent No. 3,491,272, dated Jan. 20, 1970. Divided and this application Oct. 31, 1968, Ser. No. 812,492
Int. Cl. H01l 9/00, 9/12

U.S. Cl. 317-234

2 Claims

To improve the reverse voltage breakdown characteristics of a semiconductor body having a junction therein formed by zones of dissimilar resistivities the periphery of the body adjacent the junction is beveled. With a positive bevel (lowest

cross section zone having the highest resistivity) the reverse voltage breakdown characteristics improve progressively as the angle between the junction and the beveled periphery decreases. With two junction bodies having a higher resistivity N or P central zone between P or N zones, respectively, of lower resistivity a positive bevel may be provided at each junction so that a pulleylike concave periphery results with the minimum cross section of the body appearing in the central zone.



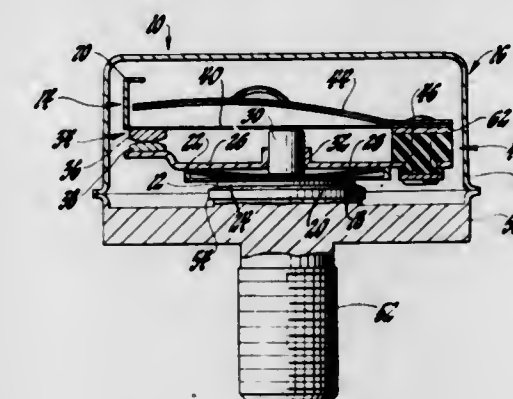
structures with junction isolation and with dielectric isolation as well as methods for forming such structures. Means for avoiding parasitic transistor action in junction isolated structures, where such transistor action would detract from intended circuit operation, are also described.

3,575,645
POWER ZENER PACKAGE

Kenneth W. Doversberger, Kokomo, and Thomas J. Furnival, Logansport, Ind., assignors to General Motors Corporation, Detroit, Mich.
Filed July 17, 1969, Ser. No. 842,516
Int. Cl. H01l 1/12, 1/14

U.S. Cl. 317-234

6 Claims



A self-protective circuit element including a semiconductor device and a switch responsive to the semiconductor device temperature and to current through the semiconductor device in a casing. The switch provides an open circuit in series with the semiconductor device when it senses that the semiconductor device temperature is above a certain level or when current through the semiconductor device exceeds a predetermined level. The casing presents the circuit element as an integral unit and provides a plurality of electrically insulated current paths to the switch and the semiconductor device from outside the casing.

A second embodiment provides a self-protective circuit element having an SCR and a temperature responsive switch in series with the gate terminal of the SCR, the switch being responsive to the SCR temperature within a casing.

3,575,646
INTEGRATED CIRCUIT STRUCTURES INCLUDING CONTROLLED RECTIFIERS

Edmund A. Karcher, Palm Beach Gardens, Fla., assignor to Westinghouse Electric Corporation, Pittsburgh, Pa.
Filed Sept. 23, 1966, Ser. No. 581,484
Int. Cl. H01l 1/10

U.S. Cl. 317-235

5 Claims

Integrated circuit structures are provided wherein three of the regions of a four layer device, such as a controlled rectifier, are the same, in conductivity type, resistivity, and impurity concentration gradient, as the emitter, base, and collector

The disclosed embodiment of this invention is a servosystem for controlling the rotational position of a pair of anamorphic lenses in a perspective alteration optical system. A first servomechanism is connected to directly drive one of the anamorphic lenses and also to directly drive one input shaft of a differential coupling. A second servomechanism is connected to a second input shaft of the differential coupling. The other anamorphic lens is connected to and driven directly from the output shaft of the differential coupling. A signal proportional to the torque produced by the first servomechanism is supplied to the second servomechanism such that positional errors resulting from the inherent compliance of the second servomechanism are eliminated.

3,575,648
ELECTRIC MOTOR CONTROL SYSTEM

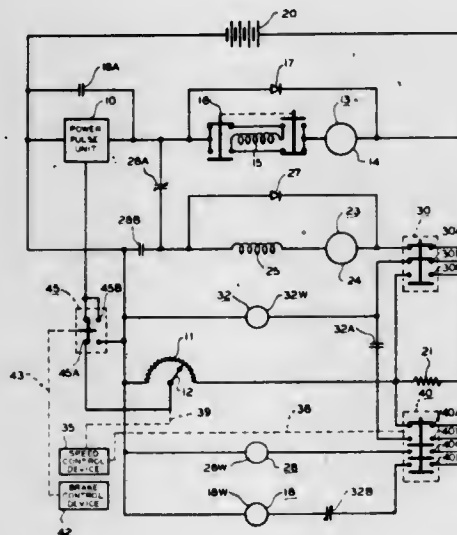
Lewis S. Ridding, Brinklow, Near Rugby, England, assignor to Clark Equipment Company
Filed July 23, 1969, Ser. No. 844,018
Claims priority, application Great Britain, July 26, 1968, 35690/68
Int. Cl. H02p 7/68

U.S. Cl. 318-106

12 Claims

A traction motor and a pump motor of an industrial lift truck are connected to be energized separately or simultane-

ously from a battery through a pulse modulation switching power unit. At full power requirements for one motor the pulse power switching unit is bypassed and that motor is con-



nected directly to the battery. When both motors are operated simultaneously and at full power requirements, the pump motor operates at full power directly from the battery and the traction motor operates at a selected inching speed.

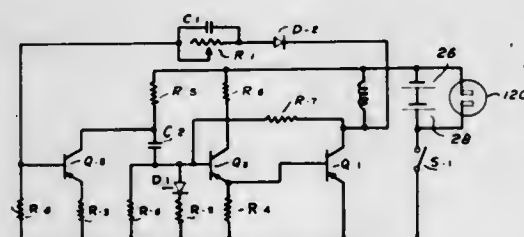
3,575,649

MOVING COIL DIRECT CURRENT RECIPROCATING MOTOR

Joseph W. Mathews, 3762 Swansea Drive, Mobile, Ala.
Continuation-in-part of application Ser. No. 542,116, Apr. 12, 1966, now Patent No. 3,469,163. This application Sept. 18, 1969, Ser. No. 858,942
Int. Cl. H02k 33/18

U.S. Cl. 318-127

16 Claims



A direct current motor having a coil moving in a magnetic field to provide reciprocating motion and a circuit for controlling the flow of current through the coil, including a transistor connected in series with the coil and a DC source. A capacitor whose state of charge varies as a function of the back e.m.f. generated by the coil is connected for controlling the conductivity state of the transistor as a function of the capacitor's state of charge.

3,575,650

LINEAR HIGH-TORQUE ELECTRIC STEPPING MOTOR SYSTEM

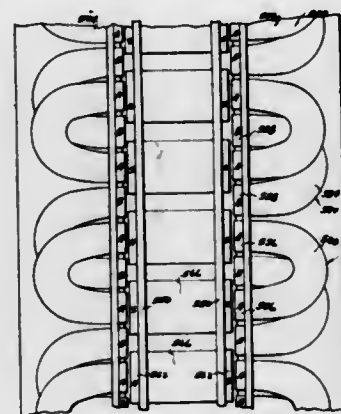
Werner H. Fengler, 23651 Fordson Drive, Dearborn, Mich.
Filed Jan. 8, 1970, Ser. No. 1,439
Int. Cl. H02k 41/02

U.S. Cl. 310-135

5 Claims

This linear high-torque electric stepping motor system includes a linearly movable armature with pole pieces either consisting of permanent magnets or wound double-headed

transverse pole pieces registering with and overlapping the heads of pole pieces of alternate opposite polarities in a pair



of stators disposed on opposite sides of the linearly-movable armature.

3,575,651

REVERSING MOTOR CONTROL SYSTEM

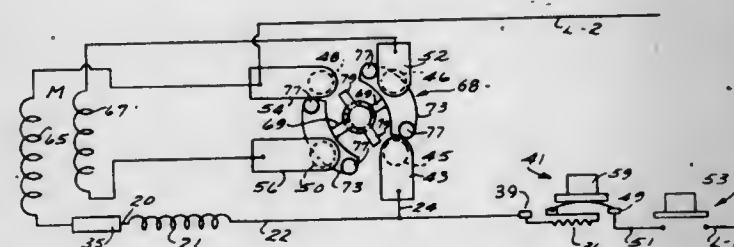
Daniel R. Pimentel, Seekonk, Mass., assignor to Texas Instruments Incorporated, Dallas, Tex.

Filed July 23, 1968, Ser. No. 746,950

Int. Cl. H02p 1/42

U.S. Cl. 318-207

16 Claims



An electromagnetic relay or contactor operates to change the relative polarities of the start and run windings of a reversible AC induction motor thereby to reverse the direction of motor rotation upon successive motor starts. The motor drives a reversibly operable garbage disposal unit or the like. After the motor has started in either direction, its start winding is cut out of circuit and it continues to run on excitation of its run winding in the direction in which it started. The circuitry for connecting the motor to an electrical power source includes a manual-reset current-responsive overload circuit breaker to disconnect the motor upon the occurrence of certain overload conditions such as extended inrush of motor current accompanying locked-rotor conditions. Upon resetting of the thermostatic breaker the motor restarts in reverse. Means is also provided whereby under increased motor currents, such as caused by motor-speed-reducing, dragging overloads, the relay will reexcite the start winding without change of direction of current therethrough, whereby the driving torque of the motor is increased without change in its direction of rotation.

U.S. Pat. No. 820,119 indicates the field of one aspect of the invention.

3,575,652

MOTOR CONTROL CIRCUIT WITH SEMICONDUCTOR SWITCHING MEANS AND TRANSFORMER AND CAPACITOR BIASING MEANS

James H. Snyder, Battle Creek, Mich., assignor to Clark Equipment Company, Buchanan, Mich.

Filed June 30, 1969, Ser. No. 837,435

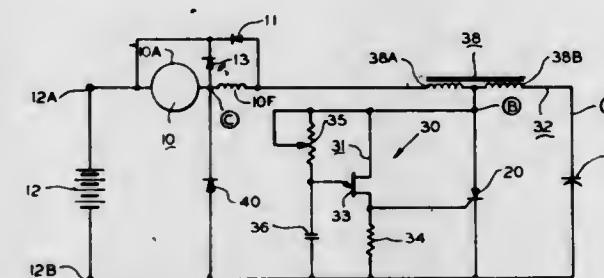
Int. Cl. H02p 5/16

U.S. Cl. 318-341

20 Claims

An electric motor is connected to a direct current electrical power source through a silicon controlled rectifier that is cyclically turned on by a triggering circuit and turned off by

a commutating circuit. A semiconductor diode is connected in parallel with the silicon controlled rectifier in a reverse biased direction relative to the direct current source. The motor power circuit operates so that the diode is forward



biased during part of the switching cycle by the action of a capacitor and transformer, and then, upon being reverse biased, momentarily carries part of the motor current in its reverse current direction thereby sharing the load current with the silicon controlled rectifier.

3,575,653

STEPPING MOTOR CONTROL CIRCUIT

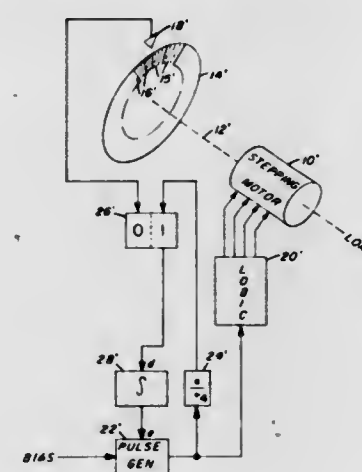
Richard T. Gucwa, Rochester, N.Y., assignor to Eastman Kodak Company, Rochester, N.Y.

Filed June 11, 1969, Ser. No. 832,176

Int. Cl. G05b 19/40

U.S. Cl. 318-685

5 Claims



A high resolution stepping motor is controlled by means of a "detented" feedback disc driven by the motor. The motor, which has more detents than the feedback disc, is stepped in closed-loop fashion by a variable frequency pulse generator. The ability of the motor to track its received pulses is employed to control and regulate the frequency of the pulse generator so that the ratio of the time between generator pulses and the time that it takes for the motor to index in response to a given pulse is kept constant.

3,575,654

SERIES CONNECTION OF ALTERNATOR EXCITATION WINDING AND THYRISTOR FOR CONTROLLING THE ALTERNATOR VOLTAGE

Werner Volkmann, Munich, Germany, assignor to Siemens Aktiengesellschaft, Berlin and Munich, Germany

Continuation-in-part of application Ser. No. 396,949, Sept. 16, 1964, now abandoned. This application Jan. 16, 1969, Ser. No. 792,905

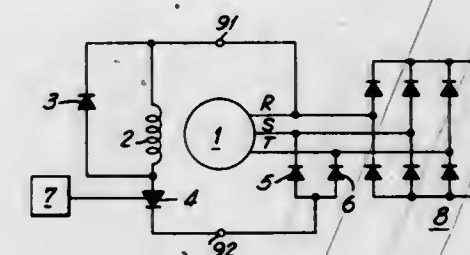
Int. Cl. H02m 7/20; H02p 9/30

U.S. Cl. 321-5

1 Claim

An excitation winding of a three-phase alternator is connected in series with a thyristor. One end of the series connection is connected to one of the three terminals of the alternator and the other end of the series connection is con-

nected through a pair of diodes to only the other two terminals of the alternator. A zero anode diode is connected across the excitation winding and constitutes a capacitance



effect when no voltage is applied to the winding thus coacting with the inductance of the winding to smooth DC passing through the winding to provide a substantially continuous flow of DC in the winding.

3,575,655

APPARATUS FOR OPTICALLY MONITORING THE GYROMAGNETIC RESONANCE OF QUANTUM SYSTEMS

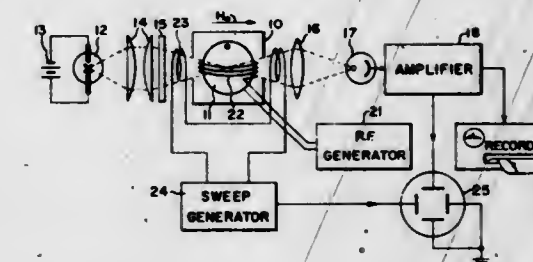
Hans George Dehmelt, Seattle, Wash., assignor to Varian Associates, Palo Alto, Calif.

Continuation-in-part of application Ser. No. 350,887, Mar. 10, 1964, now abandoned, Continuation of application Ser. No. 649,191, Mar. 28, 1957, now abandoned. This application Oct. 29, 1964, Ser. No. 407,422

Int. Cl. G01n 33/08

U.S. Cl. 324-0.5

9 Claims



There is disclosed improved magnetometer and frequency stabilizing apparatus which utilizes the principles of optical alignment and monitoring of quantum systems. Optical irradiation of said quantum systems in a unidirectional magnetic field effects alignment which alignment may then be monitored by detecting the nonabsorbed pumping radiation. Realignment of the quantum system by application of a radio frequency magnetic field results in changes in the detected nonabsorbed radiation which changes may be used to control either the frequency of the radio frequency magnetic field or the intensity of said unidirectional magnetic field to maintain said quantum systems at resonance. Quantum systems of the type disclosed include the alkali atoms, such as potassium, rubidium, sodium and cesium which are quantum systems exhibiting nonvanishing total angular momentum.

3,575,656

METHOD AND APPARATUS FOR MEASURING PRESSURE IN VACUUM INTERRUPTERS

Ward W. Watrous, Jr., Geneva, Ill., assignor to I-T-E Imperial Corporation, Philadelphia, Pa.

Filed Aug. 30, 1968, Ser. No. 756,603

Int. Cl. G01n 27/62

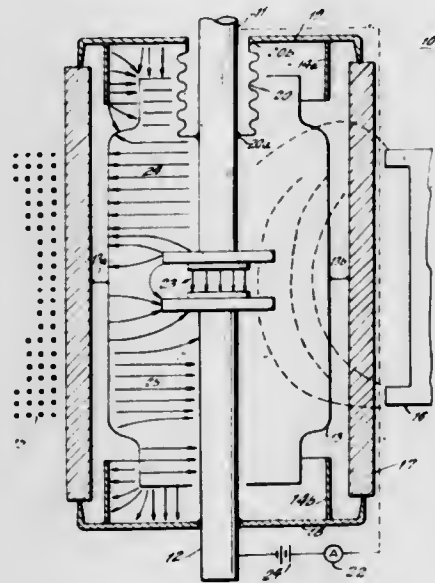
U.S. Cl. 324-33

9 Claims

Method and apparatus for measuring pressure in vacuum interrupters in which electrical connection to the metallic shield provided within the interrupter is not available.

Transverse electrostatic and electromagnetic fields are generated within the interior of the vacuum interrupter so as to cause stray electrons within the interior space of the vacuum interrupter to travel in cycloidal or elliptical paths. The tortuous route assumed by the electrons greatly

enhances the probability of an ionizing collision. The pressure measurements are taken by measuring the number of positive ions collected at the negative electrode and comparing the measurement to a calibration chart on which pressure versus



current has been plotted. The measurements may be taken by measuring the time required to charge a capacitor whose charging rate is determined by the vacuum interrupter resistance which is the unknown quantity being measured.

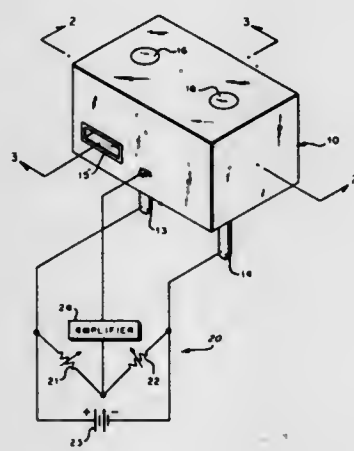
3,575,657

MICROWAVE DETECTOR MOUNT AND POWER BRIDGE CIRCUIT

Leonard Dubrowsky, East Meadow, N.Y., and Stuart S. Horwitz, Tampa, Fla., assignors to the United States of America as represented by the Secretary of the Navy
Filed May 14, 1969, Ser. No. 824,646
Int. Cl. G01r 21/04, 5/26

U.S. Cl. 324-95

2 Claims



A microwave bolometer mount and an associated temperature compensated power bridge circuit having a pair of matched barretters located in the same metal mass in close thermal proximity to each other. Only one of the bolometer elements is positioned so that it will absorb the microwave energy applied from an external source while the other element is free from any microwave influence. The matched barretters comprise a pair of complementary Wheatstone Bridge arms whereby the fluctuation of the quantity of power measured caused by the ambient temperature changing is essentially canceled out.

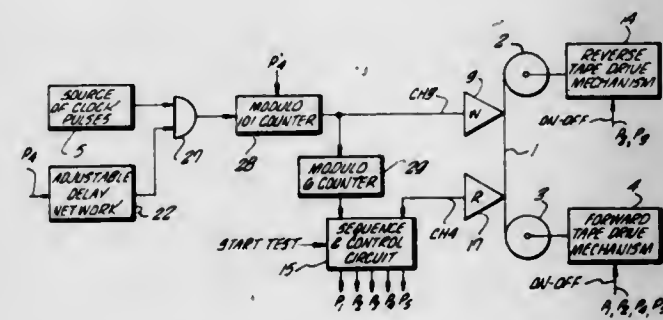
3,575,658 METHOD FOR MEASURING INCREMENTAL SPEED OF TAPE TRANSPORT

Michael I. Behr, South Pasadena, and Lewis B. Coon, Jr., Pasadena, Calif., assignors to Burroughs Corporation, Detroit, Mich.
Continuation of application Ser. No. 600,605, Dec. 9, 1966, now abandoned. This application Sept. 17, 1969, Ser. No. 859,248

Int. Cl. G01p 3/54

U.S. Cl. 324-172

27 Claims



A method for measuring the incremental speed of tape transport is disclosed. A first series of marks are prerecorded along the length of the tape at predetermined increments of space before measuring the speed. Then a second series of marks are recorded along the length of the tape at predetermined increments of time during tape transport. The spatial relationship along the length of tape between the two series of marks is a measure of the speed of tape transport. In one form of the method the first series of marks are recorded along the length of the tape in different channels, with the marks of the channels being staggered relative to each other. The series of prerecorded marks may be repeated along the length of the tape separated by gaps in which no marks appear. In such case, a new test run can be carried out for each series responsive to the sensing of the gaps.

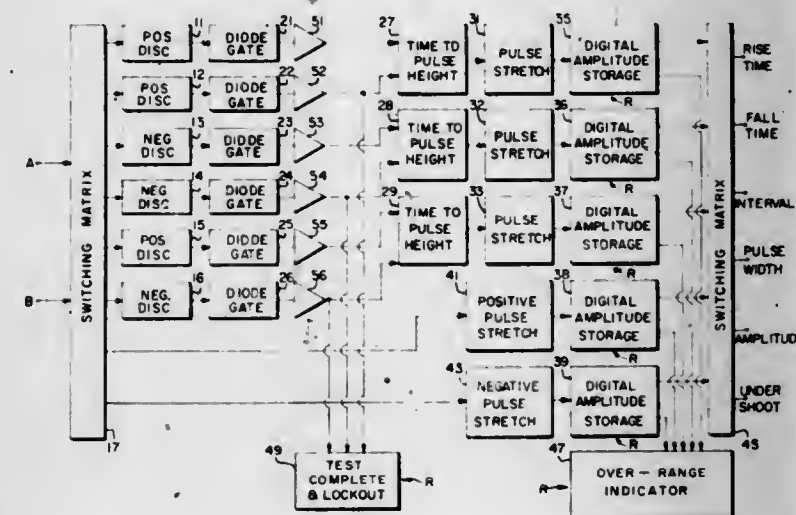
3,575,659

APPARATUS FOR MEASURING CHARACTERISTICS OF A SIGNAL PULSE

Lawrence S. Kreyer, Santa Barbara, Calif., assignor to EG & G, Inc., Bedford, Conn.
Filed Apr. 23, 1969, Ser. No. 818,714
Int. Cl. G04f 9/00

U.S. Cl. 324-189

16 Claims



In the pulse measuring apparatus disclosed herein, a pulse input signal is applied to a plurality of discriminators to provide respective timing signals when the signal amplitude passes respective preselectable levels. Signals having amplitudes which are functions of the intervals between selected ones of these events are then provided by performing time-to-pulse-height conversions in real time. As the means performing these conversions typically cannot provide continu-

ing or stored signals, a plurality of means are further employed to provide continuing signals representative of the respective intervals.

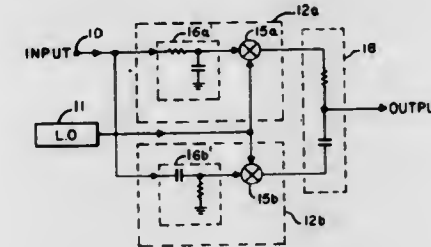
3,575,660

ELECTRONIC IMAGE REJECTION APPARATUS

Otto A. Jorgensen, Centerport, N.Y., assignor to Hazeltine Corporation
Filed Oct. 3, 1968, Ser. No. 764,798
Int. Cl. H04b 1/18

U.S. Cl. 325-388

4 Claims



Disclosed is electronic image rejection apparatus which provides relatively uniform image rejection performance over a band of input frequencies and a range of operating temperatures without supplemental frequency or temperature compensation. The apparatus accepts an L.O. signal and an input RF signal containing both desired and image frequency components, and processes the signals in two parallel signal conversion channels to develop a resultant output IF signal which contains substantially only frequency components corresponding to the desired components of the input RF signal. In the parallel channels conversion of the input RF signal to IF takes place together with the introduction of equal but opposite phase shifts. The phase-shifted IF signal in each channel is then further phase shifted an amount equal in magnitude to that introduced in the RF to IF conversion process, and the resulting two IF signals then combined to develop the aforementioned resultant output IF signal. Other embodiments are covered.

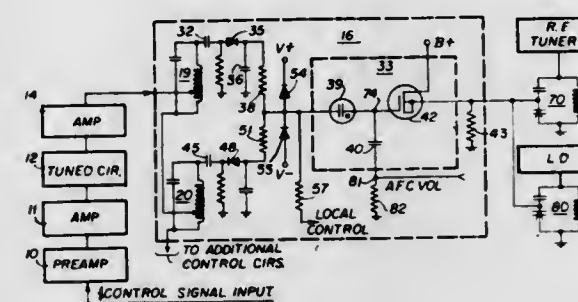
3,575,661

REMOTE CONTROL TUNING CIRCUIT

William H. Slavik, Oak Lawn, Ill., assignor to Motorola, Inc., Franklin Park, Ill.
Filed Nov. 5, 1968, Ser. No. 773,520
Int. Cl. H04b 1/16

U.S. Cl. 325-390

8 Claims



Remote control tuning of a television set is accomplished by providing a desired DC voltage level derived from an input signal at a particular frequency to a capacitor through a neon tube, and the voltage level stored in the capacitor is coupled to a varactor tuner by a field-effect transistor. In order to insure accurate tuning, the output of an automatic frequency control (AFC) circuit is added to the voltage present on the capacitor to modify the voltage level supplied to the field-effect transistor, thereby modifying the tuning voltage of the tuner causing it to pull on to the correct frequency.

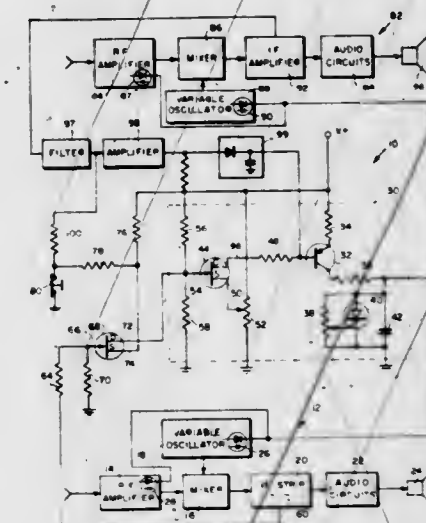
3,575,662

ELECTRONIC SEARCH-TUNING SYSTEM

Elden R. Davisson, Columbus, Ind., assignor to Arvin Industries, Inc., Columbus, Ind.
Filed June 21, 1968, Ser. No. 738,957
Int. Cl. H03j 3/18; H04b 1/28

U.S. Cl. 325-470

17 Claims



A circuit for use in electronically sweeping the tuning capacitors of a radio receiver through their capacitance range for successively tuning in each station. The sweeping action stops automatically and the value of the tuning capacitors are held constant at each station which is picked up by the radio. The sweep function is restarted to drive the tuner toward the next higher frequency station by means of a manually operated switch. The tuning capacitors comprise voltage variable capacitance diodes which are varied by means of a ramp voltage supplied by a generator. The generator is formed by a PNP transistor which charges a capacitor to provide the ramp voltage, and by a first field effect transistor which controls the base current of the PNP transistor. A silicon controlled rectifier is connected in parallel with the capacitor at the output of the ramp generator to discharge the capacitor after it has reached the peak voltage level required to vary the diode's capacitance. In the case of an FM radio, said first field effect transistor has its gate electrode coupled for bias control by a ratio detector in the IF strip of the FM receiver. The output of the ratio detector causes the ramp voltage to level off, when a station is tuned in, by establishing the currents in the transistors so that the charging current to the ramp generator capacitor ceases, thereby holding constant the voltage to the tuning diode. In the case of an AM radio, the IF frequency developed in the AM receiver is passed through a series circuit formed by a narrow band filter, an amplifier, and a rectifier, to provide a DC voltage which is applied to the base electrode of the PNP ramp generator transistor. The DC voltage at said base electrode becomes more positive as a station is tuned in, and the PNP transistor decreases its conduction so that the ramp function ceases and the output voltage to the tuning diodes remain constant.

3,575,663

BIT RATE SYNCHRONIZER FOR CLOCK AND PULSE CODE MODULATED SIGNALS

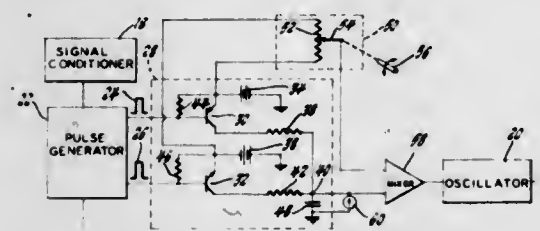
Duane E. McIntosh, Palmyra, Wis., assignor to General Motors Corporation, Detroit, Mich.
Filed June 30, 1969, Ser. No. 837,768
Int. Cl. H03k 1/00, 3/04

U.S. Cl. 328-63

3 Claims

An apparatus is provided for synchronizing the bit rate of a clock pulse signal with the bit rate of a pulse code modulated signal. The bit rate of the clock signal is regulated by a con-

trol signal so as to synchronize the bit rate of the clock signal with the bit rate of the modulated signal. The control signal is obtained by mixing a reference signal with a variable bias signal. The reference signal represents the difference between the bit rates of the clock signal and the modulated



signal. Once the bit rate of the clock signal has been initially synchronized with the bit rate of the modulated signal, the bias signal is adjusted so as to make the reference signal zero. Thus, the bias signal equals the control signal so as to maintain synchronization during periods when transmission of the modulated signal is interrupted.

3,575,664

PULSE WIDTH DISCRIMINATION

Gerhard Kamin, Traisa, near Darmstadt, Germany, assignor to Fernseh GmbH, Darmstadt, Germany

Filed May 9, 1969, Ser. No. 824,393

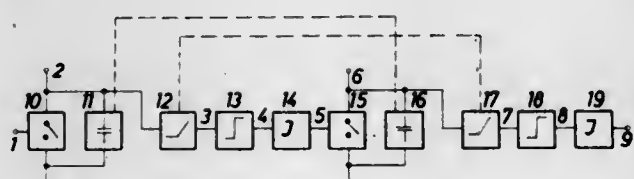
Claims priority, application Germany, May 11, 1968,

P 17 62 267.2

Int. Cl. H03k 5/20

U.S. Cl. 328—111

8 Claims



The charge on a capacitor is increased linearly with time for the duration of an input pulse. The voltage on the capacitor is applied to a threshold circuit which gives an output signal when the voltage on the capacitor exceeds a predetermined threshold value. The circuit thus furnishes no output signal if the input pulse width is less than a predetermined amount. For wider input pulses the output circuit from the threshold circuit is converted to a pulse. The pulse is then extended for the time period previously cut off by the threshold circuit. The resulting output pulse is thus of the same size as the input pulse when the input pulse width is larger than a predetermined value.

ERRATUM

For Class 328—139 sec:
Patent No. 3,575,215

3,575,665

ASYNCHRONOUS DEMODULATION SYSTEM FOR PULSE POSITION MODULATION SIGNAL UTILIZING PHASE OR FREQUENCY MODULATED HIGHER HARMONIC OF A SAMPLING FREQUENCY

Takamichi Honma, Tokyo, Japan, assignor to Nippon Electric Company, Limited, Tokyo-to, Japan

Filed June 12, 1968, Ser. No. 736,516

Claims priority, application Japan, June 15, 1967, 42/38349

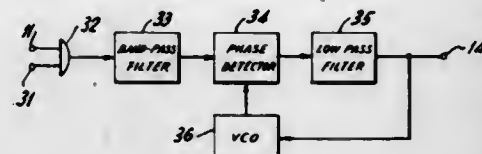
Int. Cl. H03k 9/04

U.S. Cl. 329—107

2 Claims

A system for demodulating pulse-position modulated (PPM) signals derives a phase or frequency-modulated wave from the incoming PPM signals through a band-pass filter

having a center frequency substantially equal to an integral multiple of the sampling frequency of the incoming PPM



signals. The phase- or frequency-modulated wave is then demodulated.

3,575,666

TELEVISION SYNCHRONIZING SYSTEM USING A PHASE CONTROLLED GYRATOR FILTER

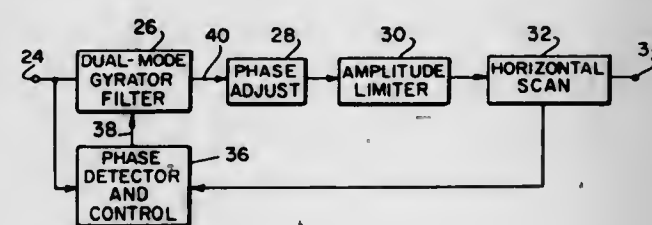
Martin Fischman, Wantagh, and John Matarese, New City, N.Y., assignors to General Telephone & Electronics Laboratories, Incorporated

Filed July 7, 1969, Ser. No. 839,205

Int. Cl. H03b 3/04; H04I 7/08

U.S. Cl. 331—20

12 Claims



A horizontal synchronizing system for a television receiver. The sync pulses are applied to a tuned circuit consisting of a capacitor and a gyrator-simulated inductor. The resulting signal in the tuned circuit is used to control the derivation of the horizontal sawtooth waveform. The use of a gyrator allows the entire circuit to be fabricated by integrated circuit techniques, and also minimizes the possibility of side locking or spurious synchronization at multiples of 60 Hz. off the horizontal scanning frequency by eliminating the need for the conventional horizontal oscillator. This arrangement results in a phase difference between the sawtooth waveform and the sync pulses, but this phase difference is eliminated by the provision of a phase adjust circuit. A phase detector and control circuit which changes the resonant frequency of the tuned circuit by adjusting one of the gyrator impedances minimizes spurious phase shifting and ensures a stable picture. The gyrator also operates in a second mode to provide a horizontal scan in the absence of sync pulses.

3,575,667

SINGLE MODE RING LASER

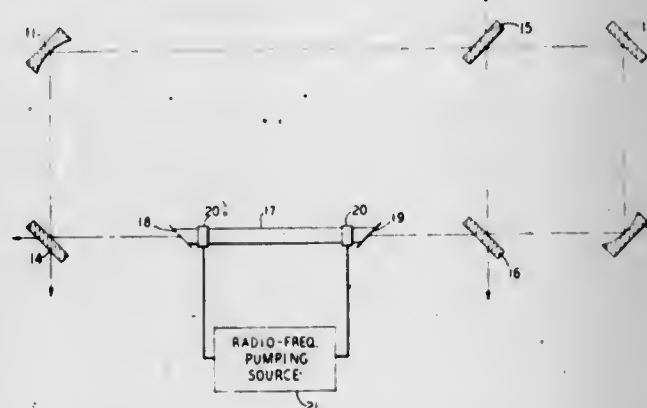
Peter W. Smith, Little Silver, N.J., assignor to Bell Telephone Laboratories, Incorporated, Murray Hill, Berkeley Heights, N.J.

Filed July 27, 1967, Ser. No. 656,473

Int. Cl. H01s 3/05

U.S. Cl. 331—94.5

4 Claims



A highly mode-selective ring laser is made with primary and auxiliary ring-resonators that are coupled through beam

splitters that direct out of the laser a large portion of radiation in modes that are not resonant in both of the resonators. Typically, the beam splitters will operate on modes propagating in opposite senses. A typical configuration includes primary and auxiliary ring resonators both in the form of quadrilaterals and includes beam splitters with reflectivities chosen to provide a loss for the nonselected modes that is higher than the gain of the laser.

3,575,668

LASER FREQUENCY STANDARD EMPLOYING AN OPTICAL LIMITER

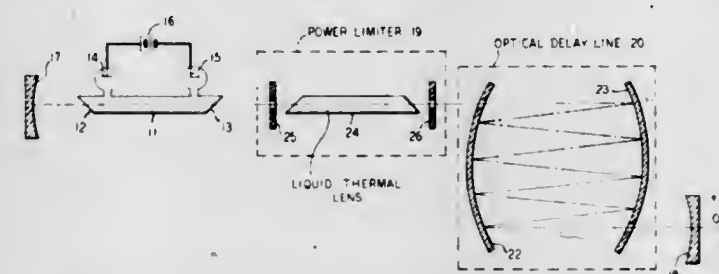
Peter W. Smith, Little Silver, Md., assignor to Bell Telephone Laboratories, Incorporated, Murray Hill, Berkeley Heights, N.J.

Filed Mar. 18, 1968, Ser. No. 713,923

Int. Cl. H01s 3/10

U.S. Cl. 331—94.5

4 Claims



The disclosed laser has, within its resonator, an active medium and an optical limiter adapted to limit at very low levels in order to provide a very narrow effective linewidth at the peak of the atomic gain-versus-frequency curve. The optical resonator is made sufficiently long, for example, by including therein a subsidiary folded resonator, to have a resonance within the narrow effective linewidth. The limiter provides the laser with a self-stabilizing characteristic that minimizes the effects of random fluctuations in the cavity loss or in the gain of the active medium.

3,575,669

CHEMICAL LASER APPARATUS

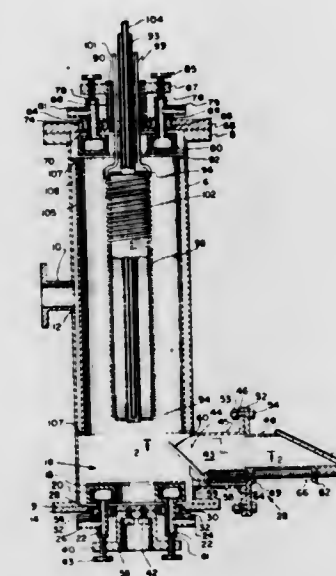
Andrew V. Haefl, Los Angeles, Calif., assignor to TRW, Inc., Redondo Beach, Calif.

Filed June 17, 1968, Ser. No. 737,722

Int. Cl. H01s 3/00

U.S. Cl. 331—94.5

4 Claims



The present invention relates to an apparatus and process for achieving amplification of radiation from an excited, chemically reacting mixture by initiating chemical reaction of the mixture adjacent to an optical cavity and quickly flowing the mixture transversely through the cavity while the radiation interacts with the excited molecules of the mixture. Tun-

ing and focusing of the optical cavity or the reflection chamber is effected by varying the placement and curvature of cavity defining reflectors. Output light energy is removed from the optical cavity by a separate reflector selectively movable into the path of the reflecting radiation.

3,575,670

APPARATUS FOR SYNCHRONOUSLY MODE LOCKING A PLURALITY OF LASERS

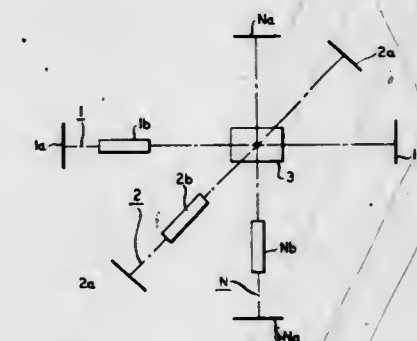
John W. Hansen, North Plainfield, N.J., assignor to Bell Telephone Laboratories, Incorporated, Murray Hill, Berkeley Heights, N.J.

Filed Dec. 27, 1968, Ser. No. 787,367

Int. Cl. H01s 3/00

U.S. Cl. 331—94.5

12 Claims



The longitudinal modes of a plurality of lasers are synchronously mode locked by means of an intracavity mode-locking device (e.g., a phase modulator, an acoustically excited mechanism, or a bleachable dye) common to the cavity resonator of each of the lasers, the lengths of each of the resonators being an integral multiple of each other. If, in addition, the resonators are designed such that the longitudinal mode-separation frequency is an integral multiple of the transverse mode separation frequency, both the transverse and longitudinal modes will synchronously and simultaneously phase lock, producing in each resonator a pulse which traverses a zigzag path bouncing back and forth between the resonator reflectors.

3,575,671

HIGH POWER MONOMODE LASER STRUCTURE WITH MULTIPLE COUPLED CAVITIES

Benjamin Dessus, and Rene Lenfant, Paris, France, assignors to Compagnie Generale D'Electricite, Paris, France

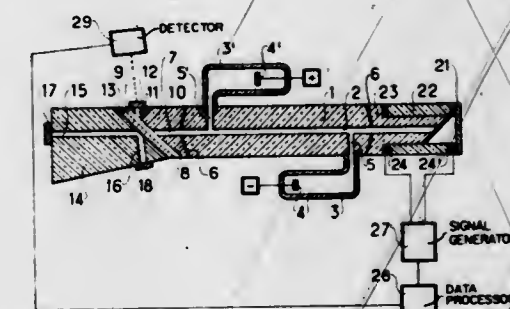
Filed Feb. 12, 1969, Ser. No. 798,644

Claims priority, application France, Feb. 12, 1968, 139,558

Int. Cl. H01s 3/08

U.S. Cl. 331—94.5

8 Claims



Single-mode laser energy structure comprising a main cavity and a secondary cavity coupled to the main cavity and formed by a prismatic unit, either disposed in the main cavity containing a laser tube or attached to the laser tube itself.

3,575,672

SYNCHRONIZABLE PULSE SOURCE

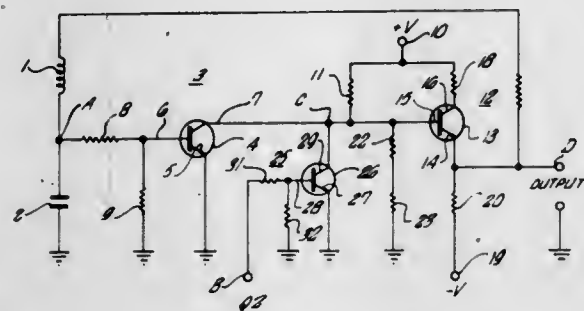
Frank W. Weber, Duarte, Calif., assignor to Burroughs Corporation, Detroit, Mich.

Filed Aug. 14, 1967, Ser. No. 660,484

Int. Cl. H03b 5/08

U.S. Cl. 331-117

7 Claims



A source of repetitive voltage pulses having an input terminal for the application of an inhibit signal to stop the source from producing its output signal with the source having the ability to immediately produce its output at the selected frequency without a stabilization period upon the removal of the inhibit signal.

A plurality of such sources are used to provide an exact synchronized clock pulse train in a timing system for timing the recovery of data from a magnetic data storage file.

3,575,673

SYSTEMS FOR PULSE MODULATING A SIGNAL

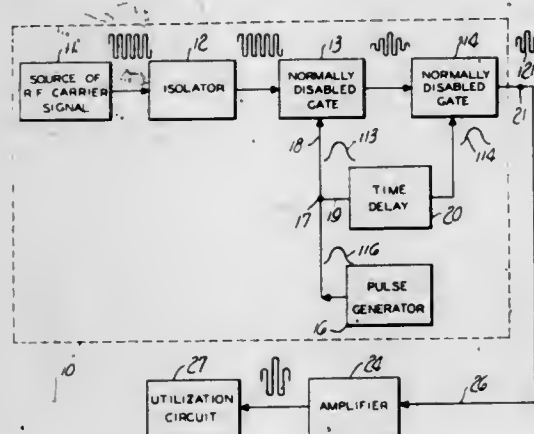
Edward Joseph Biron, Jr., Methuen, and Joseph Ignace Pelc, Andover, Mass., assignors to Western Electric Company, Incorporated, New York, N.Y.

Filed Nov. 27, 1968, Ser. No. 779,437

Int. Cl. H03k 7/08

U.S. Cl. 332-9

8 Claims



A pulse signal of relatively wide pulse width is split into two similar gating signals. These signals are transmitted in parallel to two series-connected gates through paths of unequal effective lengths. Thus, a staggered reception of the gating signals provides a relatively short period of common enabling of the gates and an RF carrier signal is pulse modulated by the series-connected gates.

3,575,674

MICROSTRIP IRIS DIRECTIONAL COUPLER

Harlan Howe, Jr., Acton, Mass., assignor to Microwave Associates, Inc.

Filed May 9, 1969, Ser. No. 831,810

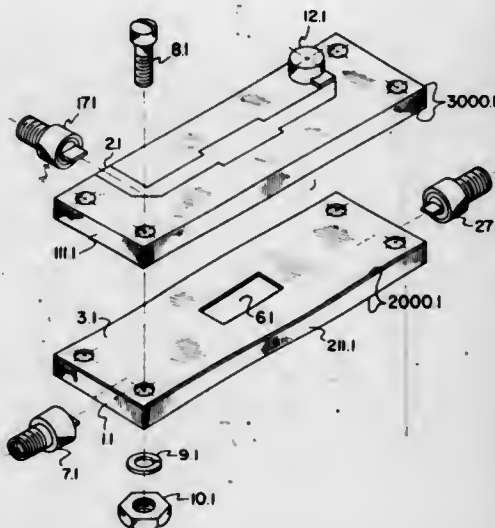
Int. Cl. H01p 5/14

U.S. Cl. 333-10

4 Claims

A microwave iris directional coupler on microstrip having high directivity is disclosed. The device is primarily for use in single ground plane microstrip transmission lines of the type commonly used for microwave hybrid integrated circuits. It

has an iris between two lines separated by a common ground plane, such that each line forms a separate transmission line



3,575,675

WAVEGUIDE CONNECTOR

Gerhard Hirsch, and Herbert Berth, Backnang, Wurttemberg, Germany, assignors to Telefunken Patentverwertungsgesellschaft m.b.H., Ulm Danube, Germany

Filed Sept. 10, 1969, Ser. No. 856,737

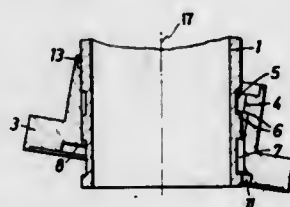
Claims priority, application Germany, Oct. 31, 1968,

P 18 06 361.1

Int. Cl. H01p 1/04; F16l 23/00; F16b 9/00

U.S. Cl. 333-98

7 Claims



A connector for use with waveguides includes a tubular element having an inner periphery of a shape which allows the element to be placed about one end of a waveguide and which permits tilting movement of the element between a first position in which its axis is concentric with that of the waveguide and a second position in which its axis is at an angle to that of the waveguide. Interengaging means are formed on the interior periphery of the tubular element for locking with corresponding means formed in the exterior periphery of the waveguide when the element is moved from the first position to the second position.

3,575,676

HIGH-SPEED, HIGH-CURRENT SOLENOID

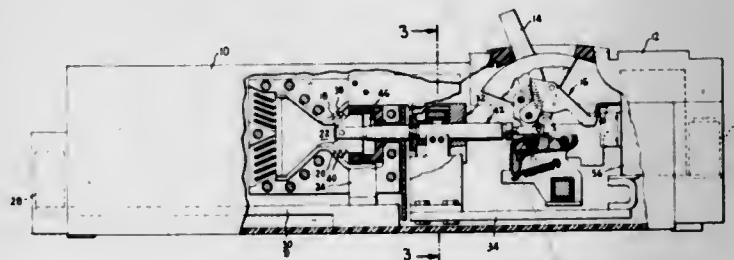
Norman R. Beaudoin, Bristol, and Robert W. Lauben, Farmington, Conn., assignors to General Electric Company

Filed Nov. 4, 1969, Ser. No. 873,968

Int. Cl. H01h 77/10

U.S. Cl. 335-16

12 Claims



A current-limiting circuit breaker incorporates an improved ultra high-speed solenoid operator for carrying con-

tinuous current loads substantially in excess of 100 amperes without exceeding 80° C. The solenoid operator is comprised of a generally C-shaped nonhelical winding of substantially one full turn having a cross-sectional area controlled to provide a minimum space factor and flux path, a magnetic cup-shaped stator including an efficient flux path return shell confining the winding and a generally cylindrical armature axially projecting into the winding and having a radial flange spaced from the shell by a small radial gap to reduce the length of the flux path through air while completing a flux path of minimum reluctance.

3,575,679

CIRCUIT BREAKER WITH IMPROVED TRIP

ADJUSTMENT MEANS

James P. Ellsworth, Beaver, and John Zipay, New Brighton, Pa., assignors to Westinghouse Electric Corporation, Pittsburgh, Pa.

Filed Feb. 6, 1968, Ser. No. 703,409

Int. Cl. H01h 71/74

U.S. Cl. 335-176

35 Claims

ELECTRIC CIRCUIT INTERRUPTER

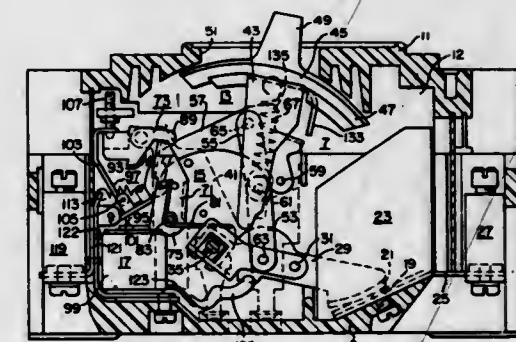
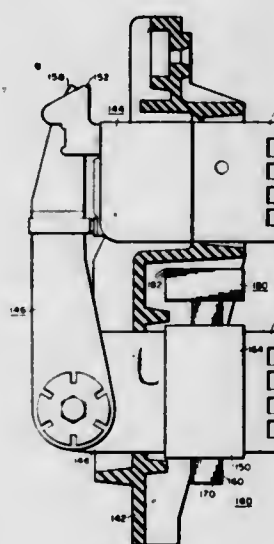
Russell E. Frink, Pittsburgh, Pa., assignor to Westinghouse Electric Corporation, Pittsburgh, Pa.

Filed Jan. 2, 1969, Ser. No. 788,588

Int. Cl. H01h 73/00

U.S. Cl. 335-18

5 Claims



A circuit breaker, that comprises trip means automatically operable upon the occurrence of certain overload current conditions to trip the breaker and adjusting means selectively adjustable within a range of adjustment to adjust the trip means, comprises lock means or limit means selectively operable to change the range of adjustment.

An electrical circuit interrupter having first and second contacts connected to first and second conductors, and a current transformer having a magnetic core and electrical winding assembly. The magnetic core of the current transformer is disposed to encircle one of the conductors, with a magnetic shield being disposed between the magnetic core and the other of the conductors, to prevent the flux from the other conductor from saturating a portion of the magnetic core.

3,575,678

REED SWITCH ASSEMBLY

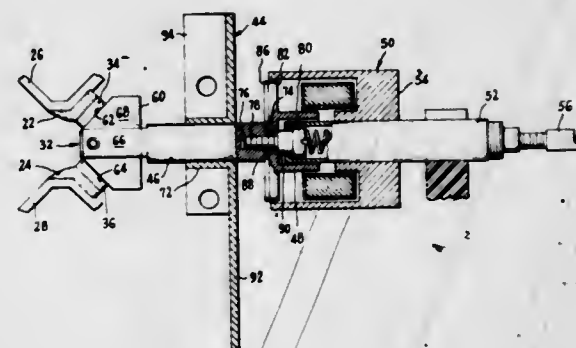
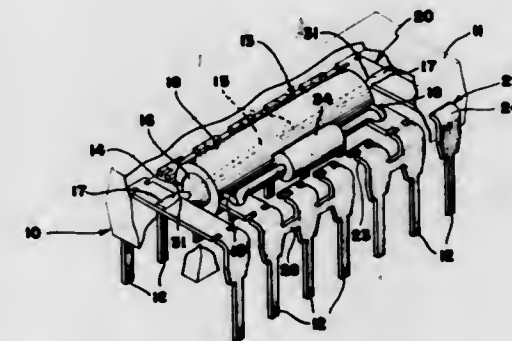
William Forbes Barton, Arlington Heights, Ill., assignor to Grigsby-Barton, Inc., Arlington Heights, Ill.

Filed Oct. 6, 1969, Ser. No. 863,958

Int. Cl. H01h 51/28

U.S. Cl. 335-151

10 Claims



A current-limiting electric circuit breaker utilizes materials of high thermal conductivity in the movable contact assembly and provides means for conducting heat away from the contact area toward other members of the circuit breaker. The heat conducting means includes a heat cap on the muffle assembly having side flanges in intimate surface contact with the muffle enclosure and a heat fin mounted on the contact rod and having a portion in good thermal contact with a large metallic housing member having heat dissipating qualities.

A relay assembly having a reed switch and an encircling coil encapsulated in an insulating body which also encloses a portion of a flat frame having a plurality of elongated contact

3,575,681

REMOTE FUSE DESTRUCTION DEVICE

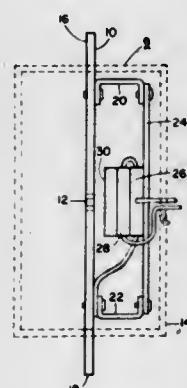
Alan Samuel Nusbaum, Phoenix, Ariz., assignor to Motorola, Inc., Franklin Park, Ill.

Filed June 11, 1969, Ser. No. 832,124

Int. Cl. H01h 85/00

U.S. Cl. 337-1

5 Claims



The combination of a fuse and a means which is controllable from a distance, as by radio transmission and reception, to open a circuit by destroying the fuse.

3,575,682

EXPULSION FUSE AND CONDENSER IN A HORIZONTALLY SLIDABLE DRAWER

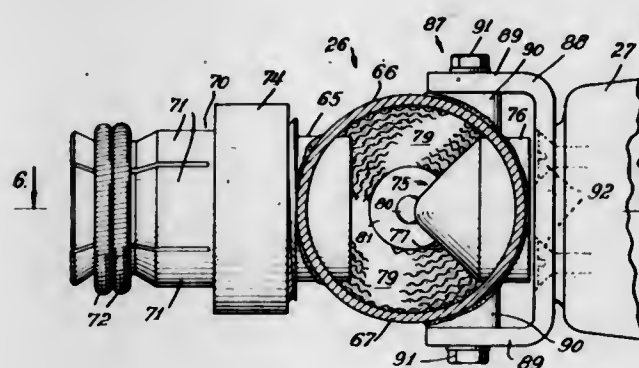
Harold H. Fahnoe, Evanston, Ill., assignor to S & C Electric Company, Chicago, Ill.

Filed Sept. 15, 1969, Ser. No. 857,676

Int. Cl. H01h 85/38

U.S. Cl. 337-282

15 Claims



A drawer mounted expulsion fuse has a sealed plug-in connection to the midsection of a stationary tubular condenser housing provided with a deflector for directing the exhaust products from the fuse into a cooling and condensing device at each end of the housing.

3,575,683

PLUG-IN EXPULSION FUSE WITH SEAL BETWEEN EXHAUST TERMINAL AND STATIONARY CONTACT SLEEVE

Harold H. Fahnoe, Evanston, Ill., assignor to S & C Electric Company, Chicago, Ill.

Filed Sept. 15, 1969, Ser. No. 857,883

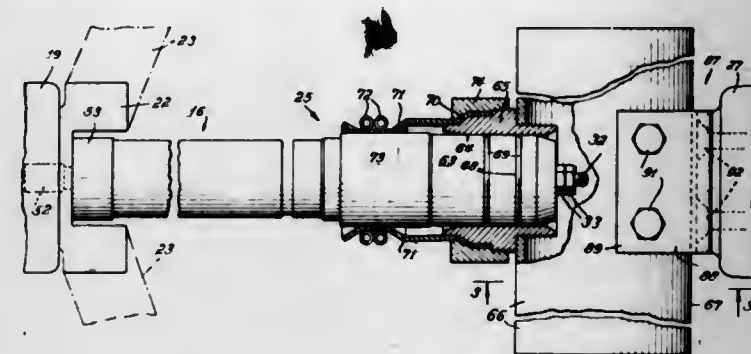
Int. Cl. H01h 85/38

U.S. Cl. 337-282

5 Claims

The exhaust terminal of an expulsion fuse is telescoped

within a stationary contact sleeve with a seal therebetween to



prevent flow of arc products between the terminal and the contact sleeve.

3,575,684

ELECTRICAL SAFETY-PLUG ASSEMBLY

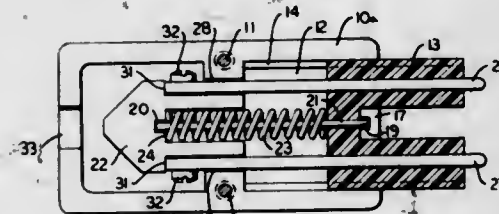
Charles S. McIntyre, R. 4, Box 73B, Greenfield, Ind.

Filed Aug. 22, 1969, Ser. No. 852,181

Int. Cl. H01r 13/44

U.S. Cl. 339-42

3 Claims



Disclosed is an electrical plug for use in a conventional, electrical plug-in outlet which can be attached to an electrical appliance cord, for example, or used as an adapter. Both types have an insulating sheath which is spring-biased to a position covering the current-carrying prongs of the plug and which retreats, baring the prongs, as it is inserted into an electrical outlet.

3,575,685

ELECTRICAL PLUG TO RECEPTACLE LATCH

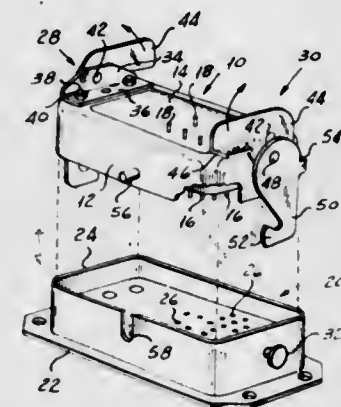
Paul R. Gley, Hillsdale, N.J., assignor to Rex Chainbelt, Inc., Milwaukee, Wis.

Original application June 12, 1967, Ser. No. 645,456, now Patent No. 3,488,622, dated Jan. 6, 1970. Divided and this application June 10, 1969, Ser. No. 854,331

Int. Cl. H01r 13/62

U.S. Cl. 339-45

4 Claims



A latch assembly for engaging and disengaging a multiple contact pin plug assembly with respective receptacles of a friction receptacle assembly in which a handle movably mounted on one of the assemblies operates interengageable means on the assemblies to force the pins into frictional engagement in one direction of movement of the handle and positively withdraws the pins from the receptacles in the other direction of movement of the handle. My assembly provides a positive locking action when the contact pins are in the receptacle.

CHEMICAL

3,575,686

TREATMENT OF TEXTILES

John William Case, Norman Frederick Crowder, and Wilfred Arthur Stephen White, Runcorn, England, assignors to Imperial Chemical Industries Limited, London, England

No Drawing. Continuation-in-part of application Ser. No. 549,498, May 12, 1966. This application Oct. 14, 1966, Ser. No. 586,663

Claims priority, application Great Britain, June 24, 1965, 21,905/65

Int. Cl. D061 1/02

U.S. Cl. 8-142

6 Claims

There is provided an improvement in the process whereby textile materials are solvent scoured. The solvent is flashed off and thereafter the textile material is finished or dyed. The improvement resides in applying the finish or dyestuff in the flash-off stage of the known process.

3,575,687

PROCESS FOR THE SELECTIVE SEPARATION OF RARE EARTH METALS FROM THEIR AQUEOUS SOLUTIONS

James L. Drobnick, Lakewood, Paul R. Kruesi, Golden, and Tom P. Chen, Arvada, Colo., assignors to Molybdenum Corporation of America, Louviers, Colo.

No Drawing. Filed Sept. 12, 1969, Ser. No. 857,577

Int. Cl. C22b 59/00; C01f 17/00

U.S. Cl. 23-22

14 Claims

The recovery of rare earth metal values in aqueous solution by contacting the solution with an organic phase including an organic extractant comprised of a mixture of anionic and cationic extraction agents. The anionic agent is a quaternary ammonium or phosphonium compound and the cationic agent is selected from aliphatic and aryl phosphates, carboxylic acids, organophosphoric acids and oximes.

3,575,688

PRODUCTION OF HIGH-QUALITY SALT CAKE VIA VANTHOFFITE

Ulrich E. G. Neltzel and Jerome A. Lukes, Ogden, Utah, assignors to Great Salt Lake Minerals & Chemicals Corporation, New York, N.Y.

Filed Feb. 5, 1969, Ser. No. 796,802

Int. Cl. C01d 5/10

U.S. Cl. 23-121

16 Claims

Vanthoffite is produced by reacting sodium chloride with mineral material containing magnesium and sulfate in two, sequentially arranged, reaction zones. The composition of the aqueous phase in the first zone is maintained in the vanthoffite region of the phase diagram descriptive of the system. In the second zone, the magnesium chloride concentration is increased to the region of the phase diagram where vanthoffite is metastable, but a sufficient concentration of vanthoffite crystals is maintained in this zone to insure continued vanthoffite formation. The vanthoffite is dissolved, and the resulting solution is clarified and fed through a series of reactors with sequentially increasing concentrations of sodium chloride to produce high-quality sodium sulfate.

3,575,689

METHOD FOR MAKING FERROMAGNETIC CHROMIUM DIOXIDE

Toshihiro Mihara, Yukio Terada, and Eiichi Hirota, Osaka, Japan, assignors to Matsushita Electric Industrial Co., Ltd., Kadoma, Osaka, Japan

No Drawing. Filed July 31, 1968, Ser. No. 748,935

Claims priority, application Japan, Aug. 10, 1967, 42/51,674

Int. Cl. C01g 37/02; H01f 1/00

U.S. Cl. 23-145

5 Claims

Ferromagnetic chromium dioxide is prepared by mixing chromium trioxide and NH_4^+ ions (i.e. aqueous solution of an ammonium compound or such compound per se), heating the mixture at $280-480^\circ\text{C}$ in an autoclave, furnace-cooling the mixture, washing and drying. The weight ratio $\text{NH}_4^+:\text{CrO}_3$ is from 0.01:1.0 to 0.08:1.0. Advantageously, 0.01 to 20.0 atomic percent of tellurium is incorporated into the mixture to be heated. The obtained ferromagnetic chromium dioxide has high coercive force and high saturation magnetization so that it is useful e.g. in magnetic recording tape, etc.

3,575,690

HYDROGEN RECOVERY PROCESS

Raymond F. Wilson, Reese A. Peck, and Frank E. Guptill, Jr., Fishkill, N.Y., assignors to Texaco, Inc., New York, N.Y.

No Drawing. Filed Mar. 28, 1969, Ser. No. 811,634

Int. Cl. C01b 1/18

U.S. Cl. 23-212

13 Claims

A process for recovering hydrogen from hydrogen containing gases, especially refinery gases containing hydrogen at a concentration greater than 20 volume percent, by introducing a hydrogen extracting aromatic hydrocarbon into a hydrogenation catalyst zone at a point intermediate in said catalyst zone, in the presence of a hydrogen containing gas in countercurrent relationship to said aromatic hydrocarbon, removing a hydrogenated aromatic hydrocarbon effluent from the catalyst zone, introducing said effluent into a dehydrogenation catalyst zone at a point intermediate in said catalyst zone in the presence of an enriched hydrogen containing gas in countercurrent relationship to said effluent and recovering a hydrogen containing gas of at least about 90 volume percent hydrogen.

3,575,691

APPARATUS FOR CONTINUOUSLY PREPARING AND MOUNTING WET FILTRATION SPECIMENS

Alan Pollard, St. Thomas's Hospital Medical School, Lambeth Palace Road, London, SE.1, England, and Alfred G. Wright, 7 Cardigan Road, London, NW.6, England

Filed Mar. 14, 1967, Ser. No. 622,946

Claims priority, application Great Britain, Mar. 14, 1966, 11,082/66

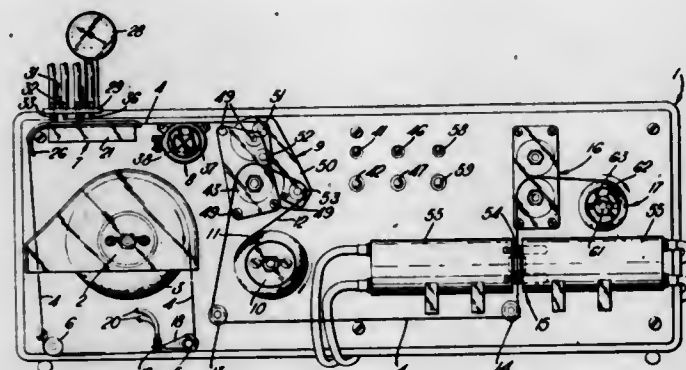
Int. Cl. G01n 1/00

U.S. Cl. 23-253

3 Claims

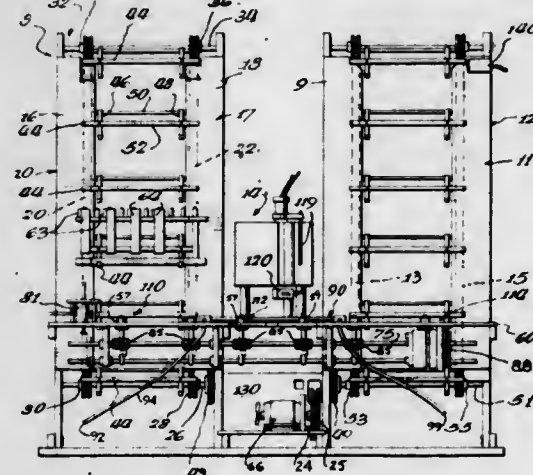
The invention consists in an apparatus for automatically filtering a succession of liquid/solid mixtures so as to deposit the solid component of each mixture on an individual discrete portion of the length of a continuous strip

of filter medium and thereafter retaining the solids on the strip by adhesively securing a protective film to at least one face of the strip. The protected strip with the



solids retained in the order of their deposition may thereafter be examined and/or stored (e.g. in reeled form) without risk of disturbing the solids.

3,575,692
LIQUID SAMPLE RACK HANDLING APPARATUS
Saul R. Gilford, Oberlin, Ohio, assignor to Gilford Instrument Laboratories Inc., Oberlin, Ohio
Filed Sept. 20, 1968, Ser. No. 761,055
Int. Cl. G01n 1/00, 31/00
U.S. Cl. 23—253 6 Claims



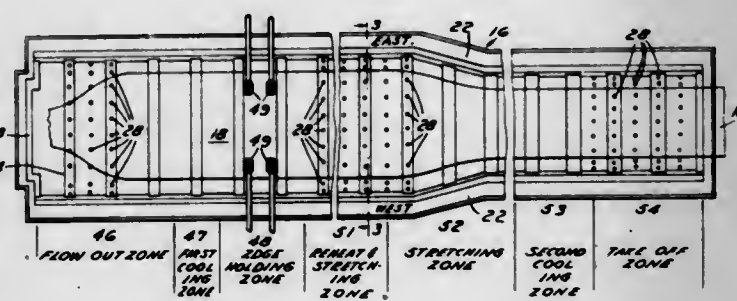
A conveyor apparatus for handling a plurality of liquid sample containers upon which sample tests are to be performed. The apparatus has a feed elevator onto which a plurality of racks holding the sample containers are placed by a technician. The feed elevator moves the racks to a conveyor table along which the intended tests are performed. A programming device controlled by a fiber bundle sensing system automatically starts and stops the conveying and testing operations at suitable stages of operation of the apparatus. A storage elevator is provided adjacent the conveyor table to remove and store the racks which hold containers upon which testing has been completed until the same can be removed therefrom by a technician.

3,575,693
PROCESS FOR THE PRODUCTION OF PHOSPHONITRILIC HALIDES
John Emsley, Barnet, and Peter Balfour Udy, London, England, assignors to Castrol Limited, London, England
No Drawing. Filed Mar. 15, 1968, Ser. No. 713,306
Claims priority, application Great Britain, Mar. 16, 1967, 12,381/67
Int. Cl. B01j 11/00; C01b 25/00
U.S. Cl. 23—357 13 Claims

Cyclic polymers of the formula $(\text{PNCI}_2)_n$ wherein n is an integer of at least 3 are prepared by reacting phosphorus pentachloride with ammonium chloride in the

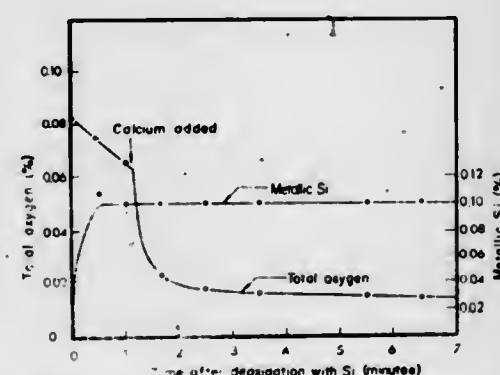
presence of a catalyst of the formula PAX_3 wherein A is oxygen or sulphur and X is chlorine or bromine, the phosphorus pentachloride, ammonium chloride and the catalyst being in specified molar proportions.

3,575,694
METHOD OF MANUFACTURING TAPERED GLASS
Achille M. Bigliardi, Jr., Inkster, Kenneth E. Coburn, Franklin, and Frederick A. Scheer, Dearborn, Mich., and Robert J. Thompson, Nashville, Tenn., assignors to Ford Motor Company, Dearborn, Mich.
Filed Aug. 30, 1968, Ser. No. 756,439
Int. Cl. C03b 18/02
U.S. Cl. 65—63 3 Claims



A method of producing a glass ribbon with a tapering thickness across the width thereof has the following steps. Molten glass forming materials are flowed out upon a molten tin bath to produce a glass ribbon of substantially uniform thickness. The molten glass ribbon moves in a direction downstream of the chamber and the ribbon is uniformly cooled to a temperature whereat the viscous glass is semi-rigid and resistant to flow. Advancement of the glass ribbon is retarded by edge rolls engaging opposite edges of the glass ribbon. The heat content of the glass ribbon across the width thereof is controlled to establish a differential temperature profile in the ribbon of glass. The higher temperature portion of the ribbon achieves a pliable condition while the cooler portion of the ribbon remains resistant to flow. A stretching force is applied to the glass ribbon between the point of retardation and the end of the processing chamber and this force attenuates the glass ribbon differentially to produce a taper in the glass ribbon across its width. The attenuated ribbon is thicker at that portion originally at the higher temperature.

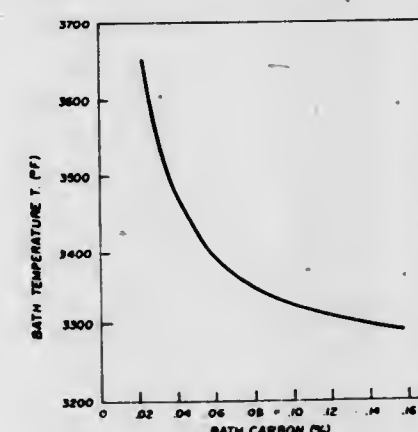
3,575,695
DEOXIDATION METHOD OF MOLTEN STEEL
Yoshio Miyashita and Katuhiko Nishikawa, Kawasaki-shi, Kanagawa-ken, Japan, assignors to Nippon Kokan Kabushiki Kaisha, Tokyo, Japan
Filed Oct. 10, 1968, Ser. No. 766,542
Claims priority, application Japan, Oct. 18, 1967, 42/66,602
Int. Cl. C21c 7/02, 7/00
U.S. Cl. 75—51 6 Claims



Method of deoxidizing molten steel by adding calcium or calcium alloy to the lower part of the molten steel in a vessel after or during deoxidation. By increasing

the yield of calcium in the molten steel, floatation of some inclusions are rapidly accelerated and then those are easily separated, and the presence of harmful macro inclusions may be decreased in a great quantity.

3,575,696
PROCESS FOR CONTROLLING THE MANUFACTURE OF HIGH-CHROMIUM STEELS
Frederick H. Rehms, Baldwin Borough, Julius D. Shimkets, Pittsburgh, Egil Ankrust, Bethel Park, and David H. Wakelin, Pittsburgh, Pa., assignors to Jones & Laughlin Steel Corporation, Pittsburgh, Pa.
Filed Sept. 19, 1968, Ser. No. 760,774
Int. Cl. C21c 5/32
U.S. Cl. 75—60 4 Claims



The refining by oxygen blowing of high-chromium low-carbon molten steel is controlled by measuring the temperature of the metal during blowing, which temperature is related to the carbon content.

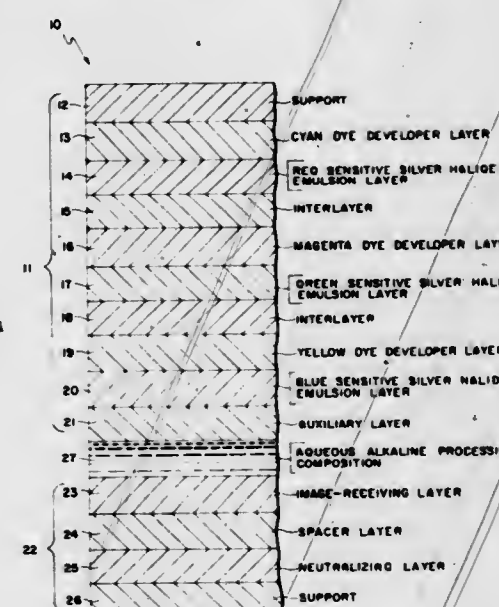
3,575,697
ACID LEACHING OF MANGANESE FROM SILICEOUS ORES AND SLAGS
Henry Dolezal, Salt Lake City, Utah, assignor to the United States of America as represented by the Secretary of the Interior
No Drawing. Filed Jan. 7, 1969, Ser. No. 789,608
Int. Cl. C22b 47/00
U.S. Cl. 75—80 11 Claims

A process for recovering manganese from siliceous ores or slags comprising (1) mixing the ore or slag with an inorganic boron compound, (2) melting the mixture and holding it in the molten state until homogenous, (3) quenching the molten mixture, and (4) leaching manganese from the quenched mixture with an acid solution. The manganese obtained by the process of the invention finds utility in a wide variety of uses, e.g., in manufacture of alloy steels, as a purifying and scavenging agent in production of metals and as a source of manganese chemicals.

3,575,698
ELECTROPHOTOGRAPHIC MATERIAL
Yoshinobu Murakami and Kazuhisa Morimoto, Osaka, Japan, assignors to Matsushita Electric Industrial Co., Ltd., Osaka, Japan
Filed June 17, 1968, Ser. No. 737,787
Claims priority, application Japan, Aug. 1, 1967, 42/49,661
Int. Cl. G03g 5/06
U.S. Cl. 96—1.6 5 Claims

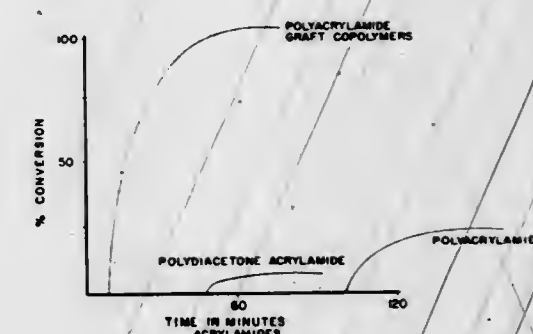
An improved electrophotographic material comprising a conductive support layer and a photoconductive insulating layer, the latter comprising a combination of a photoconductive poly-compound and a carbonium salt as novel sensitizer, said photoconductive polymeric compound comprising at least one of poly-N-vinylcarbazole, poly-3,6-dibromo-N-vinylcarbazole, brominated poly-N-vinylcarbazole, polyacenaphthylene and polyvinylanthracene.

3,575,699
PHOTOGRAPHIC PRODUCTS AND PROCESSES COMPRISING ALKALI-HYDROLYZABLE ANTIFOGGANT PRECURSORS
Stanley M. Bloom, Waban, and Howard G. Rogers, Weston, Mass., assignors to Polaroid Corporation, Cambridge, Mass.
Filed Sept. 3, 1968, Ser. No. 756,838
Int. Cl. G03c 1/34, 5/54, 7/00
U.S. Cl. 96—3 33 Claims



Antifoggant precursors of the Formula A—Z, wherein A is an antifoggant nucleus resultant from the deprotonization of the antifoggant A—H, and Z is a moiety which masks the antifoggant functionality of A, provide substantially no antifoggant effect on photographic systems in which they are contained until cleavage of the masking moiety from the antifoggant nucleus is accomplished.

3,575,700
POLYVINYLAMIDE GRAFTS IN SPACER LAYERS FOR COLOR DIFFUSION TRANSFER LIGHT SENSITIVE UNITS
Lloyd D. Taylor, Everett, Mass., assignor to Polaroid Corporation, Cambridge, Mass.
Continuation-in-part of application Ser. No. 641,669, May 26, 1967. This application Jan. 13, 1969, Ser. No. 790,648
Int. Cl. G03c 5/54, 7/00
U.S. Cl. 96—3 63 Claims



A sensitive photographic element for diffusion transfer color systems wherein two of its sensitized layers containing dye image-forming material soluble and diffusible in alkali are separated from each other by a layer comprising polyvinyl amide graft copolymers.

3,575,701 POLYVINYLAMIDE GRAFTS IN SPACER LAYERS FOR COLOR DIFFUSION TRANSFER IMAGE- RECEIVING UNITS

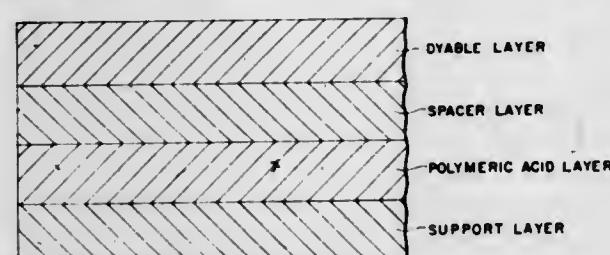
Lloyd D. Taylor, Everett, Mass., assignor to Polaroid Corporation, Cambridge, Mass.

Continuation-in-part of application Ser. No. 641,670, May 26, 1967. This application Jan. 13, 1969, Ser. No. 790,747

Int. Cl. G03c 7/00

U.S. Cl. 96—3

49 Claims



An image-receiving element for diffusion transfer color processes comprising a polyvinylamide graft copolymer spacer layer.

3,575,702 AUTOMATIC PRINTING METHOD AND APPARATUS

Hans-Peter Huber, Munich, Germany, assignor to Agfa-Gevaert Aktiengesellschaft, Leverkusen, Germany

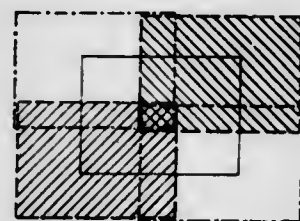
Filed Aug. 22, 1968, Ser. No. 754,567

Claims priority, application Germany, Aug. 27, 1968, P 15 97 066.8

Int. Cl. G03c 5/08; G03b 27/78

U.S. Cl. 96—23

7 Claims



Reproduction of images of color photographic positive or negative originals onto printing paper is regulated by an adjustable exposure control which receives impulses from an evaluating circuit. The latter adjusts the exposure control as a function of the average density of that area of the original which has a maximum average contrast. The average contrast of several areas of the original can be determined by the process of elimination.

3,575,703 PHOTOGRAPHIC DIFFUSION TRANSFER PRODUCT AND PROCESS

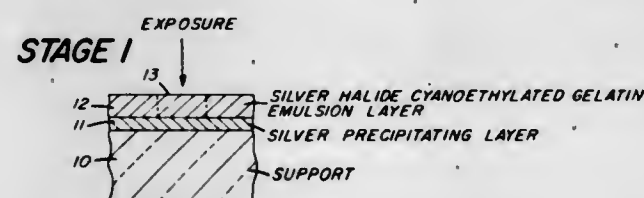
Malcolm Lawrence Judd and Robert Leslie Schneider, Rochester, N.Y., assignors to Eastman Kodak Company, Rochester, N.Y.

Filed May 17, 1968, Ser. No. 730,029

Int. Cl. G03c 1/48

U.S. Cl. 96—76

12 Claims



A photographic element having a support carrying a hardened silver precipitating stratum containing silver precipitating nuclei and an overlying light sensitive silver halide stratum comprising cyanoethylated gelatin. A silver image is formed in the silver precipitating stratum by diffusion transfer. The overlying light sensitive layer is easily removed because the cyanoethylated gelatin is not hardened by hardener which may migrate thereto.

3,575,704 HIGH CONTRAST LIGHT SENSITIVE MATERIALS

Eugene D. Salesin, Rochester, N.Y., assignor to Eastman Kodak Company, Rochester, N.Y.

No Drawing. Filed July 9, 1968, Ser. No. 743,333

Int. Cl. G03c 1/08, 1/40

U.S. Cl. 96—94

16 Claims

Photographic elements comprising a support coated with a hydrophilic colloid layer containing a fine grain, high contrast silver halide emulsion that is orthochromatically sensitized with a decolorizable spectral sensitizing dye that produces a modicum of sensitivity in the red region of the spectrum, said elements having poor tolerance to red safelight are made tolerant to red safelight by incorporating in the hydrophilic colloid layer with or above the silver halide, a water-soluble anthraquinone dye which has substantially no absorption of light in the blue and green regions of the spectrum but strongly absorbs light in the red region of the spectrum, without adversely affecting the quality of the developed, high contrast images or leaving any appreciable stain in the processed element.

3,575,705 METHOD FOR HARDENING A LIGHT-SENSITIVE SILVER HALIDE PHOTOGRAPHIC MATERIAL

Shui Sato, Tomio Nakajima, and Masayuki Shono, Tokyo, and Teruo Kagami, Iruma-shi, Saitama-ken, Japan, assignors to Konishiroku Photo Industry Co., Ltd.

No Drawing. Filed Oct. 22, 1968, Ser. No. 769,698

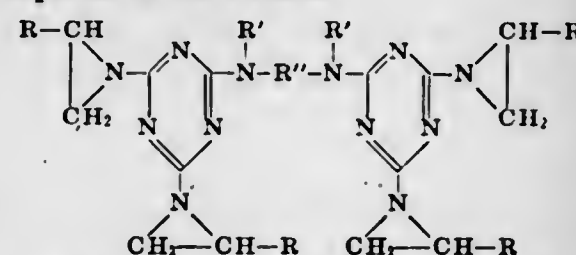
Claims priority, application Japan, Oct. 27, 1967, 42/68,776

Int. Cl. G03c 1/30; C09h 11/00

U.S. Cl. 96—111

5 Claims

A compound of the formula



wherein R is hydrogen, methyl or ethyl; R' is hydrogen or a group capable of forming a piperazine ring together with R'' and N; and R'' is an alkylene radical having less than 10 carbon atoms or a substituted or non-substituted phenylene group is added to a light sensitive gelatinous silver halide photographic material to harden same.

3,575,706 COATING BASIC OXYGEN LANCE AND METHOD OF COATING

Richard L. Ummel, Park Forest, Ill., assignor to Shell Oil Company, New York, N.Y.

No Drawing. Filed May 6, 1968, Ser. No. 728,103

Int. Cl. B44c 1/06; C21c 5/32

U.S. Cl. 117—18

10 Claims

Buildup of slag and other material on the lance of a basic oxygen furnace is prevented by coating the lance prior to use with a composition comprising finely divided inorganic particulate matter embedded in an oleaginous carrier.

3,575,707 METHOD OF COST COATING PAPER

Theodor Ploetz, Hosel, Bruno Hagg, Monchengladbach, and Wolfgang Barnscheidt, Neuss, Germany, assignors to Feldmuhle Aktiengesellschaft, Dusseldorf, Germany

Filed Nov. 26, 1968, Ser. No. 779,115

Claims priority, application Japan, Nov. 27, 1967, 42/76,072

Int. Cl. B44i 1/44; D21h 1/22

U.S. Cl. 117—64

8 Claims

Paper and cardboard are cast coated in continuous operation by overdrying the web carrying a moist coating until the residual water content of the coated web is

3,575,710 PROCESS OF SEPARATING GLUTEN FROM STARCH AND OTHER SOLIDS

Karl Erik Bernhard Plaven, Scheelegatan 1, Stockholm, Sweden

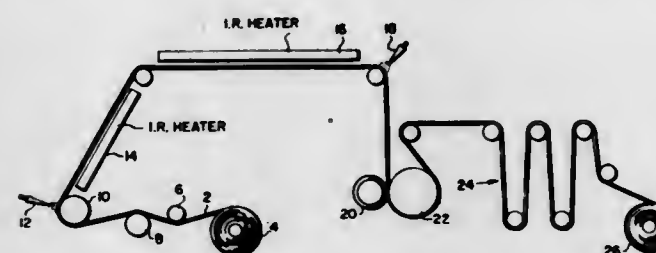
Original application May 24, 1965, Ser. No. 458,230. Divided and this application Nov. 6, 1968, Ser. No. 773,891

Claims priority, application Sweden, June 1, 1964, 6,638/64

Int. Cl. C131 1/00

U.S. Cl. 127—67

1 Claim



coating between two cylinders, one being smooth heated to above 100° C., and engaging the coating, and the other pressing against the web and being soft enough so that most of the moisture content of the coating migrates into the overdried web before the coated web is released from the pressure zone.

3,575,708 COATED REGENERATED CELLULOSE HYDRATE FILM

Wilhelm Brandt and Irmgard Bindrum, Wiesbaden-Biebrich, Germany, assignors to Kalle Aktiengesellschaft, Wiesbaden-Biebrich, Germany

No Drawing. Original application Dec. 1, 1966, Ser. No. 598,171, now Patent No. 3,520,717, dated July 14, 1970. Divided and this application Nov. 3, 1969, Ser. No. 873,630

Int. Cl. C09j 7/02

U.S. Cl. 117—122

1 Claim

This invention relates to a regenerated cellulose hydrate film having a homogeneous coating thereon comprising an adhesive additive selected from the group consisting of a phenoplast and an aminoplast in admixture with a vinylidene chloride copolymer containing about 0.01 to 1 percent by weight, based upon the weight of the copolymer, of at least one accelerator compound selected from the group consisting of tri- and tetrahydroxy benzophenones.

3,575,709 METHOD OF CLEANING SUGAR CRYSTALS

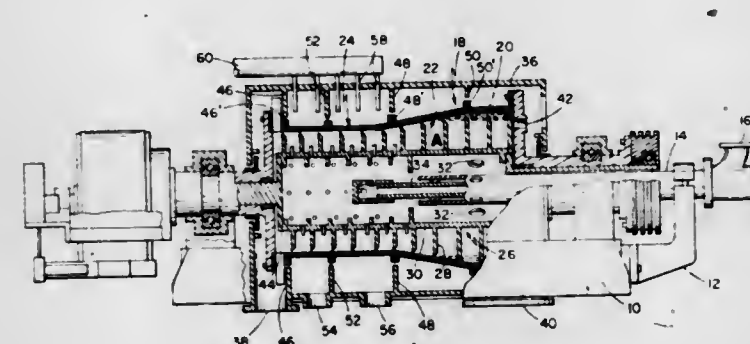
Francis X. Ferney, Walpole, Mass., assignor to Bird Machine Company, Walpole, Mass.

Filed Aug. 20, 1968, Ser. No. 753,966

Int. Cl. B04b 5/00; C13f 1/10

U.S. Cl. 127—56

8 Claims



A method of treating a magma of sugar crystals in syrup to remove impurities from the crystal surfaces in which the crystals are subjected to scrubbing in the magma in the bowl of a continuous centrifuge, and are then drained and fed over a rotating screen on which they may be washed.

3,575,711 PROCESS FOR PICKLING AND REGENERATING

David Krofchak, 1003 Royal York Road, Toronto, Ontario, Canada

Continuation-in-part of application Ser. No. 547,556, May 4, 1966. This application Dec. 26, 1968, Ser. No. 787,187

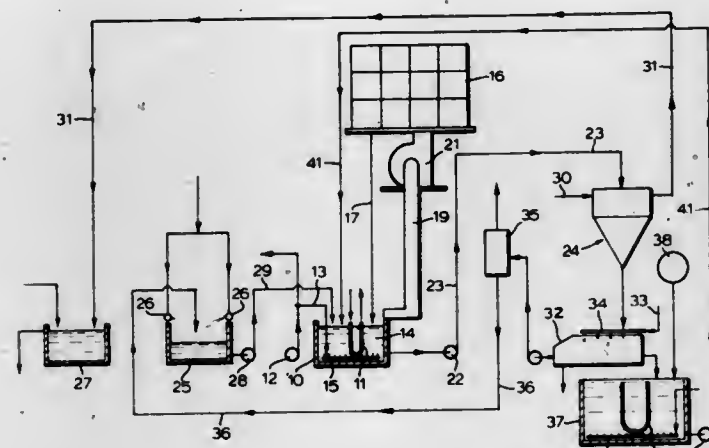
Int. Cl. C23g 1/36

U.S. Cl. 134—3

4 Claims

A process for pickling iron and steel articles and for regenerating used pickle liquor for re-use in which the articles are pickled in hot aqueous sulphuric acid bath, the bath is actively agitated by air injection to promote efficient heating and maintain uniform conditions through-

out the bath. Used solution containing 8% to 12% by weight dissolved iron is removed from the bath and



cooled to precipitate dissolved iron as $\text{FeSO}_4 \cdot 7\text{H}_2\text{O}$. Iron-free solution is returned to the bath.

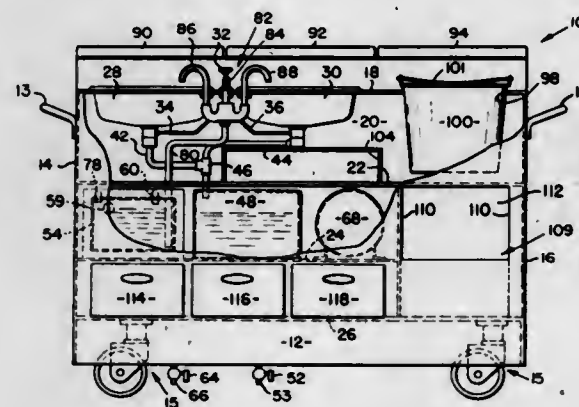
3,575,712 METHOD AND APPARATUS FOR WASHING PATIENTS

Frederick H. Pembroke, 23 Arlington Drive, Pittsford, N.Y. 14534, and John P. Gilmore, 1 Lakeview Park, Rochester, N.Y. 14613
Continuation of application Ser. No. 581,396, Sept. 22, 1966, which is a division of application Ser. No. 333,563, Dec. 26, 1963. This application July 28, 1969, Ser. No. 859,516

Int. Cl. B08b 7/04; D21b 1/10

U.S. Cl. 134-6

20 Claims



A method for cleansing the surface of a human body including the three separate and sequential steps of washing, rinsing and drying, each step including the use of a separate, disposable, and antiseptically treated toweling, to prevent secondary infection in hospitals.

3,575,713 METHOD AND APPARATUS FOR CLEANING CONTAINERS

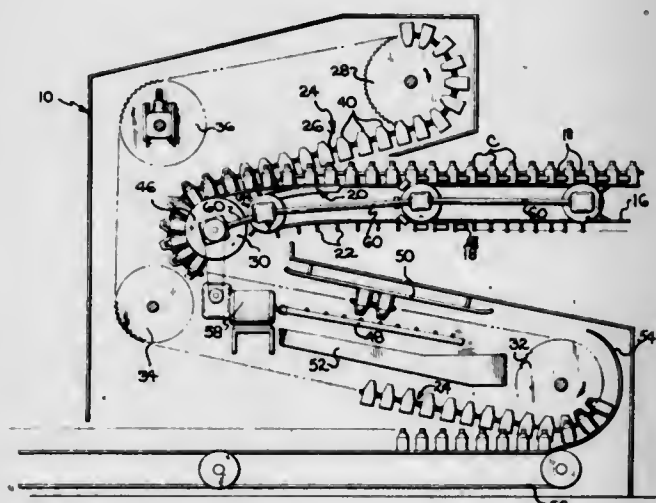
John R. Duff, Toledo, and Alfred S. Decker, Lancaster, Ohio, assignors to Owens-Illinois, Inc.
Filed July 31, 1969, Ser. No. 846,326
Int. Cl. B08b 9/00

U.S. Cl. 134-23

14 Claims

A method and apparatus for cleaning hollow articles such as bottles as they are taken from storage and fed into a filling line in a bottling plant. Bottles are transferred in individual bottle receiving pockets from an infeed conveyor through a rinser to a discharge conveyor which may be at a different level than the infeed conveyor. The pockets are on an endless conveyor and are

constructed to permit loading and unloading of the pockets continuously without abusing the bottles. The bottles are loaded into the pockets by synchronized merging of the paths of the pockets and bottles on the infeed conveyor. The pockets, while moving with the bottles are lowered onto the bottles while the bottles are

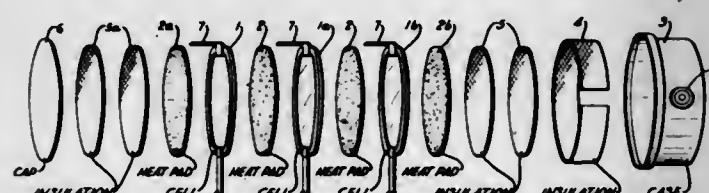


upright and then pass around a direction changing sprocket to invert the pockets to support the bottle's mouth downwardly with the mouth exposed to an upwardly directed rinsing spray. After rinsing, the pockets pass around another sprocket, after which the bottles drop from the pockets onto a discharge conveyor.

3,575,714
THERMAL TYPE PRIMARY CELL
Owen G. Bennett, Brooklandville, and John P. Woolley, Ruxton, Md., assignors to Catalyst Research Corporation, Baltimore, Md.
Filed Aug. 7, 1953, Ser. No. 372,872
Int. Cl. H01m 21/14

U.S. Cl. 136-83

5 Claims



1. A thermal, or deferred action, cell comprising spaced calcium and nickel electrodes, an inorganic salt disposed between said electrodes, said salt being solid and electrically non-conducting in the cell at normal storage temperatures but becoming an electrolyte in the molten state, and means contained in the cell for supplying heat to melt said electrolyte.

3,575,715 ULTRA-THIN FILM ELECTROLYTE ELECTRO- CHEMICAL DEVICES AND FABRICATION METHODS THEREFOR

Joseph I. Masters, Lexington, Paul Vouros, Cambridge, and James P. Clune, Danvers, Mass., assignors to Technical Operations, Incorporated, Burlington, Mass.
Filed Aug. 20, 1968, Ser. No. 754,018
Int. Cl. H01m 11/00

U.S. Cl. 136-83

14 Claims

This disclosure depicts ultra-thin film solid electrolyte devices for use as batteries, sensors, and the like, comprising electrodes and solid electrolytes all formed by vacuum

deposition. Evaporated electrolyte layers of silver bromide, silver iodide, and potassium silver iodide (KAg_2I_3) are disclosed. Novel fabrication methods are shown, especially for minimizing ionic and interface resistance in such devices.

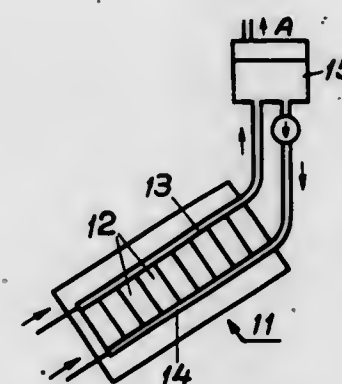
3,575,716 METHOD OF OPERATING A FUEL CELL BATTERY HAVING SLOPING INLET AND OUTLET CHANNELS

Olle Lindstrom, Vasteras, Sweden, assignor to Allmanna Svenska Elektriska Aktiebolaget, Vasteras, Sweden
Filed Dec. 11, 1967, Ser. No. 689,474
Claims priority, application Sweden, Dec. 14, 1966, 17,109/66

Int. Cl. H01m 27/12

U.S. Cl. 136-86

1 Claim



In a fuel cell battery which comprises electrodes and spaces therebetween and also outer spaces outside the electrodes for a combustible substance or oxidant respectively, there are two channels, one inlet and one outlet channel. At least the outlet channel is arranged at an angle to the horizontal plane and with its uppermost part connected to a device for feeding back electrolyte to the inlet channel.

3,575,717 METHOD OF GENERATING POWER IN MOLTEN ELECTROLYTE FUEL CELL

Walter Juda, Lexington, and David McLeod Moulton, Scituate, Mass., and Hans L. Gruber, Innsbruck, Austria; said Juda and Moulton assignors to Prototech Incorporated, Cambridge, Mass., and said Gruber assignor to Atlantic Richfield Company, Philadelphia, Pa.
Continuation of application Ser. No. 336,264, Jan. 7, 1964. This application May 8, 1968, Ser. No. 727,749
Int. Cl. H01m 27/20

U.S. Cl. 136-86

8 Claims

Halogen-containing molten electrolyte fuel cell is operated so that the actual output voltage exceeds the standard output voltage. Hydrogen-iodide gaseous reaction product insoluble in the electrolyte is swept out of the electrolyte immediately as formed to keep the reaction product activity low. The reaction product is decomposed and its constituents recycled.

3,575,718 COMPOSITE ELECTROLYTE MEMBER FOR FUEL CELL

Otto J. Adlhart, Newark, and Virendra V. Tanna, Parlin, N.J., assignors to Engelhard Minerals & Chemicals Corporation, Newark, N.J.
Filed Sept. 23, 1968, Ser. No. 761,682
Int. Cl. H01m 27/00, 11/00

U.S. Cl. 136-86

14 Claims

Thin flexible fuel cell electrolyte members, which also serve as effective barriers between the cathode and anode compartments in a fuel cell and which are useful for fuel cells operating in the temperature range of 80°-250°

C. are composite structures having two dissimilar layers, each consisting of a matrix and a concentrated liquid acid immobilized in such matrix. The matrix of each layer is comprised of a fluorocarbon gel and inert filler particles.

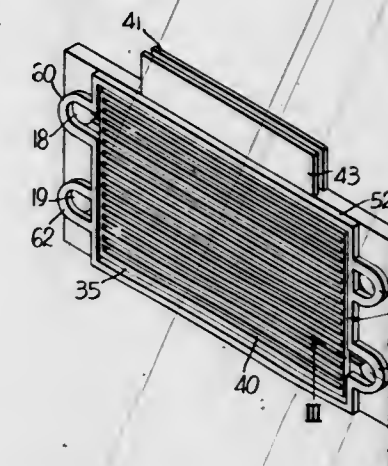


The matrix of one layer has carbon powder as an essential component. The second, which is a thinner layer contains no carbon powder, forms a dielectric barrier between the cathode and the layer containing a carbon-powder.

3,575,719
COMPACT CELL CONSTRUCTION
Canden R. Nelson, West Allis, and Hilbert P. Bruss, New Berlin, Wis., assignors to Allis-Chalmers Manufacturing Company, Milwaukee, Wis.
Filed Oct. 9, 1968, Ser. No. 766,129
Int. Cl. B01k 3/00; H01m 27/02

U.S. Cl. 136-86

6 Claims



A separable sealing construction for fuel cells and other electrochemical and membrane process cells which permits the nondestructive separation and restacking of the several unitary cells in a plurality of cells, or the disassembly and reassembly of elemental members comprising a single cell. The sealing construction comprises gasket means lying in the same geometric plane or planes as the fluid distribution matrix or matrices of the cell or cell assembly. A further feature is the provision of a symmetrical inlet and an outlet port arrangement in the cell frame which permits reverse edge orientation and reverse surface orientation of the cell frame, while still maintaining a proper fluid flow relation of the inlet and outlet conduits to the inlet and outlet ports.

3,575,720 INSULATOR MEANS FOR LITHIUM-CHLORINE HIGH TEMPERATURE BATTERY

Gale M. Craig, Anderson, Ind., assignor to General Motors Corporation, Detroit, Mich.
Filed Feb. 3, 1969, Ser. No. 795,961
Int. Cl. H01m 29/04

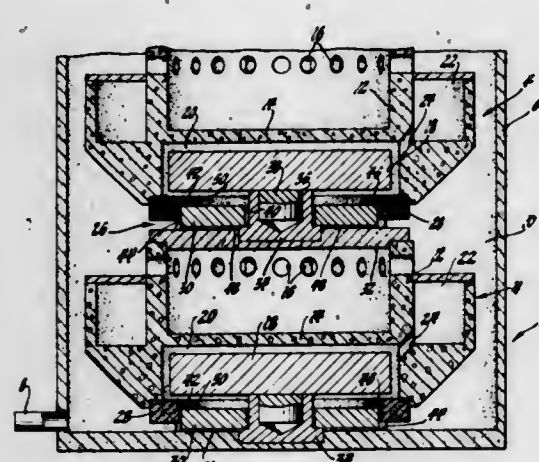
U.S. Cl. 136-86

5 Claims

Substantially environmentally inert electrical insulators and insulated conductors for use in the $\text{Li}|\text{LiCl}|\text{Cl}_2$ electrochemical system. The insulators and conductors are composites having Cl_2 -inert and Li-inert barriers which shield

vulnerable composites from chlorine or lithium attack. Specific material disclosed include combinations of alumi-

a portion of the reservoir sidewall and also the value of current which produces the voltage drop. The ratio of the amount of voltage drop to the value of current flow



num nitride, carbon, graphite, molybdenum, Kovar and stainless steel.

3,575,721

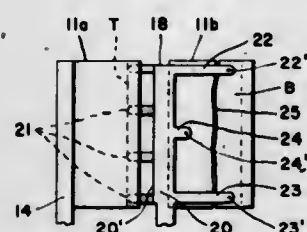
SOLAR CELL ARRAYS AND CONNECTORS

Alfred E. Mann, Sylmar, Calif., assignor to Textron Inc.
Filed Apr. 26, 1965, Ser. No. 450,597

Int. Cl. H01k 15/02

U.S. Cl. 136—89

5 Claims



An electrical connector arrangement for interconnecting an array of solar cells includes an elongated, flexible strip formed with laterally projecting tabs attached to adjacent rows of solar cells. The tabs are dimensioned and attached so as to preserve electrical continuity between various cells in the event that cell cracking occurs that otherwise would disrupt electrical continuity. The flexible strip incorporates short tabs projecting from one side for connection with a top electrode of one cell and at least one extended tab laterally projecting from the other strip side for connection with the bottom electrode of an adjacent cell. The extended tab bridges across the major portion of the bottom of the adjacent cell and is connected thereto only at points beyond the midpoint of the adjacent cell. Cracks splitting the cell in half are then prevented from completely incapacitating the solar cell.

3,575,722

LEVEL INDICATOR FOR CONDUCTIVE LIQUIDS

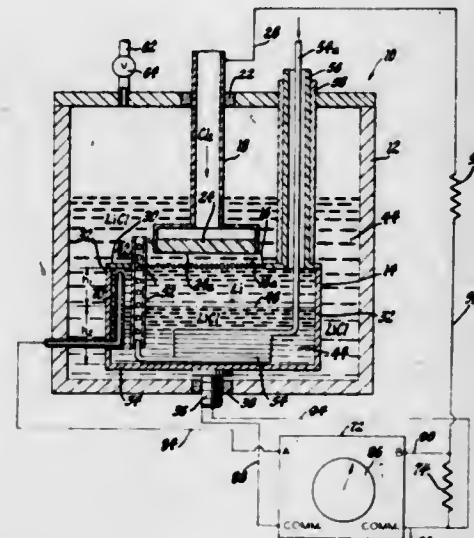
Gale M. Craig, Anderson, Ind., assignor to General Motors Corporation, Detroit, Mich.
Filed Mar. 19, 1969, Ser. No. 808,612

Int. Cl. H01m 27/00

U.S. Cl. 136—86

2 Claims

A liquid level indicator measures the level of a conductive liquid contained in a metallic reservoir. A side-wall portion of the reservoir is included in a current conductive path supplied by a source of current applied to one end of the reservoir. A measuring system monitors both the voltage drop produced by current flow through



is measured to determine the resistance of the sidewall portion not in contact with conductive liquid to give an indication of the level of the conductive liquid.

3,575,723

DIVALENT SILVER OXIDE-ZINC PRIMARY CELL AND METHOD OF FORMING

Elihu C. Jerabek, Delmar, N.Y., assignor to

General Electric Company

Filed Dec. 17, 1969, Ser. No. 885,808

Int. Cl. H01m 17/00

U.S. Cl. 136—102

3 Claims

A divalent silver oxide-zinc primary cell is disclosed which comprises a casing, a zinc anode positioned in the casing, a separator on each side of the anode, a divalent silver oxide cathode on each side of the anode adjacent each separator and spaced from the anode, and a viscous electrolytic solution contained within the cell. A method is also disclosed for forming such a cell wherein a viscous electrolytic solution is added to the cell during assembly.

3,575,724

CYLINDRICAL PRIMARY DRY CELLS

Jean Firmin Jammet, Poitiers, and François Michel Joyeux, Sourdeau Chasseneuil, France, assignors to Societe des Accumulateurs Fixes et de Traction (Societe Anonyme), Romainville, France

Filed June 4, 1969, Ser. No. 830,359

Claims priority, application France, Nov. 12, 1968, 173,274

Int. Cl. H01m 21/00

U.S. Cl. 136—107

2 Claims

Cylindrical primary dry cell including a cylindrical negative electrode embracing a depolarizer mass provided with a conductive rod serving as a positive electrode, the outer end of said rod protruding from the closure of the cell and optionally covered by a metal cap, the negative electrode being a curved metallic sheet of zinc or magnesium whose longitudinal edges do not meet, the outer surface of said sheet, except for an annular zone, bearing a synthetic non-conductive casing molded thereon and filling the space between said edges and which also serves as a bottom closure for such cell, a plastic cover mounted in the open end of said curved metallic sheet and being sealing pressed against the inner wall of said sheet in the region of its uncoated zone by a metal ring of substantial L-shaped half-section mounted thereon and whose diameter is reduced after mounting, the cover also having an escape valve arrangement for gases evolved during use of the cell.

3,575,725

BATTERY ASSEMBLY

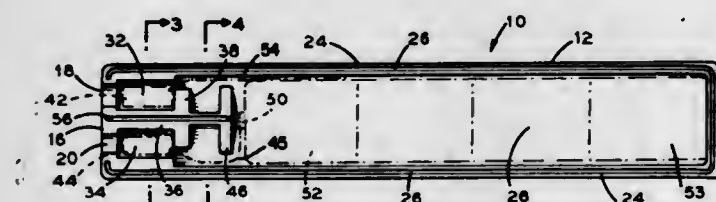
Gordon E. Kaye, South Salem, N.Y., assignor to P. R. Mallory & Co., Inc., Indianapolis, Ind.

Filed Mar. 27, 1969, Ser. No. 811,117

Int. Cl. H01m 1/00

U.S. Cl. 136—108

6 Claims



A housing for a multi-cell battery, originally of two pieces, as hollow semi-cylindrical half-housings, with raised rib element or elements on the border edges of one half housing, and a fluted receiving groove on the other half housing, to permit the two half housings to be easily and readily mated to form a closed housing which can then be bonded or sealed at the mutually fitting edges; the major elongated space in the hollow housing provides a chamber for the batteries, and a space in front of the batteries is sub-divided into two small pockets to receive electrode terminals from the string of batteries, and to communicate with co-axially aligned openings in the front end of the housing to receive insertion of external prongs from an external plug, to be connected to the terminals. Two transverse bracing flanges between the front and rear compartments serve to brace the electrode terminals in their pockets against the insertion pressure of external prongs; and to press the string of cells co-axially against the back wall of the housing, so one half-housing may serve as an assembly box for the string of batteries and their terminals during assembly in manufacture.

3,575,726

PRIMABLE ELECTROCHEMICAL GENERATOR AND ELECTROLYTE RESERVOIR STRUCTURE

Yannick Marsault, Poitiers, France, assignor to Societe des Accumulateurs Fixes et de Traction (Societe Anonyme), Romainville, France

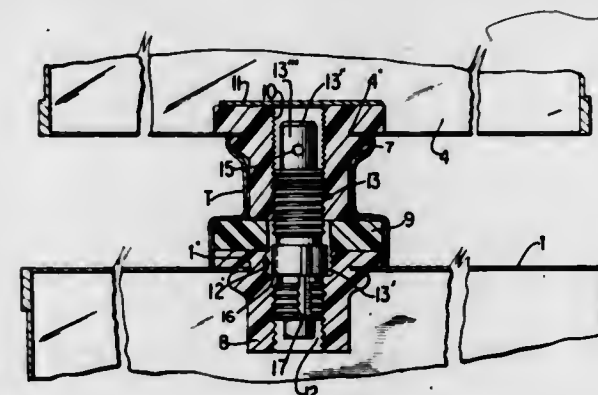
Filed Sept. 11, 1969, Ser. No. 857,112

Claims priority, application France, Sept. 11, 1968, 165,868

Int. Cl. H01m 21/00

U.S. Cl. 136—114

12 Claims



A primable electrochemical generator and electrolyte reservoir structure wherein electrolyte stored separately in a reservoir may be admitted into the container of a primable electrode separator unit at the desired time of use, so that said unit normally in the charged but dry state only then becomes primed for use as a power source. The reservoir has an orifice normally closed by a frangible

partition which prevents flow of electrolyte to the unit until the partition is pierced or ruptured so that flow into the dry unit via a filling aperture can then occur. A first nozzle comprising a centrally tapped duct is provided in the filling aperture and one end of a tubular element is screwed into this duct. The other end of the tubular element is threadedly engaged in fluid tight manner in the duct of a second nozzle mounted in the orifice of the reservoir. A safety ring surrounding the tubular element and disposed between the adjacent terminal faces of the nozzles and must be removed at the time of priming. This ring prevents the end of said tubular element closest to the partition from engaging or piercing it. To effect priming action, the reservoir and its nozzle are unscrewed from the tubular element and the safety ring removed. Then the nozzle is remounted on the tubular element and screwed onto the latter, the addition space occasioned by removal of the spacing ring then permitting a sharpened end of the tubular element to move into piercing or rupturing contact with the partition thereby permitting flow of electrolyte via the tubular element from the reservoir into the unit. Any air within the unit is vented therefrom as electrolyte flows into it via one or more external grooves provided in the tubular element which are so located as to preclude formation of bubbles. Filling time is controlled by appropriate dimensioning of the tubular element and the grooves.

3,575,727

BATTERY SEPARATOR PRODUCTION AND BATTERY

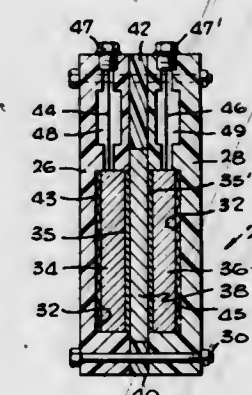
Frank C. Arrance, Costa Mesa, and Carl Berger, Santa Ana, Calif., assignors to McDonnell Douglas Corporation, Santa Monica, Calif.

Filed May 8, 1968, Ser. No. 727,394

Int. Cl. H01m 3/02

U.S. Cl. 136—146

11 Claims



Production of inorganic porous sintered battery separator consisting essentially of a solid solution of magnesium oxide and a minor portion of certain additive oxides of an element capable of entering the magnesium oxide crystal lattice, such as zirconium oxide, chromic oxide, and aluminum oxide, by procedure including sintering high purity magnesium oxide, e.g., at a temperature of about 1200° C., mixing such sintered magnesium oxide with a minor portion of a compound of the type noted above, e.g., chromium oxide, grinding such mixture, preferably under anhydrous conditions such as in the presence of absolute alcohol, to small particle size, preferably less than 5 microns, presintering such ground mixture, e.g., at a temperature of about 1200° C., cooling and again grinding the presintered mixture, preferably in the presence of absolute alcohol, to the above noted fine particle size, compacting such ground presintered mixture into separator membranes, finally sintering the separator membranes, e.g., at a temperature of about 1400° C. rapidly cooling to an intermediate temperature, e.g., of the order of about 1000° C., and then slowly cooling said finally sintered membranes to ambient temperature. The

3,575,739

SECONDARY RECRYSTALLIZATION OF SILICON IRON WITH NITROGEN

Howard C. Fiedler, Schenectady, N.Y., assignor to General Electric Company
No Drawing. Filed Nov. 1, 1968, Ser. No. 772,857
Int. Cl. H01f 1/16

U.S. Cl. 148—111

7 Claims

This invention discloses the production of silicon-iron sheet material useful as a magnetic material in electrical applications and which has the cube-on-edge or (110) [001] crystallographic grain orientation. Conventionally, this structure is produced by a phenomenon known as secondary recrystallization which has depended upon a dispersion of particles of sulfur compounds which are difficult to remove. It has been found that nitrogen compounds may be substituted for the sulfur compounds and the desired structure produced. The nitrogen is much easier to remove.

3,575,740

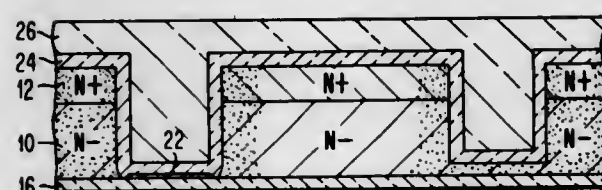
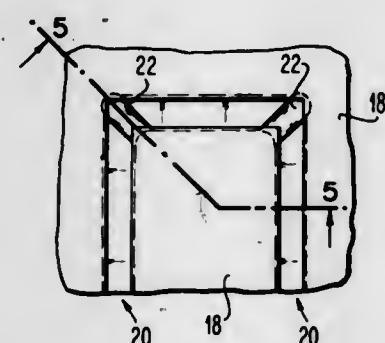
METHOD OF FABRICATING PLANAR DIELECTRIC ISOLATED INTEGRATED CIRCUITS

Paul P. Castrucci and John W. Mason, Poughkeepsie, N.Y., assignors to International Business Machines Corporation, Armonk, N.Y.

Filed June 8, 1967, Ser. No. 644,601
Int. Cl. H01l 7/36; 3/00

U.S. Cl. 148—175

15 Claims



A method for fabricating dielectric isolated integrated devices which allows the formation of a truly planar surface. The method includes etching isolation channels in a semiconductor substrate through a suitable mask. The mask pattern is designed to enhance deeper etching at certain locations in the isolation channels. A dielectric layer is formed over the exposed surfaces of the isolation channels and a semiconductor material is grown in the channels. The deeper etched locations which are now filled with dielectric isolation are used as a depth guide in the formation of a dielectric layer from the semiconductor substrate surface opposite to the one from which the etching took place. The depth guide can be used in either a deep etch or lap-back process. The last isolation step is then to continue the dielectric layer past the depth guide to the major portion of the isolation channels to produce the fully isolated islands of semiconductor material in the semiconductor substrate.

3,575,741

METHOD FOR PRODUCING SEMICONDUCTOR INTEGRATED CIRCUIT DEVICE AND PRODUCT PRODUCED THEREBY

Bernard T. Murphy, New Providence, N.J., assignor to Bell Telephone Laboratories, Incorporated, Murray Hill, N.J.

Filed Feb. 5, 1968, Ser. No. 703,164
Int. Cl. H01l 7/64

U.S. Cl. 148—175

9 Claims

In the fabrication of a junction-isolated semiconductor integrated circuit structure, a plurality of N-type buried layers are diffused into a P-type substrate, and a thin P-type epitaxial layer is grown thereover. N-type deep contact zones are diffused completely through the epitaxial layer to intersect separate ones of the N-type buried layers, thus defining base areas. P-type impurities are then diffused non-selectively into the entire surface of the P-type epitaxial layer to form a graded impurity profile for the base zone. N-type emitter zones are then diffused selectively into the surface.

3,575,742

METHOD OF MAKING A SEMICONDUCTOR DEVICE

George J. Gilbert, Whitehouse Station, N.J., assignor to Solitron Devices, Inc.

Original application Nov. 9, 1964, Ser. No. 409,702, now Patent No. 3,484,309, dated Dec. 16, 1969. Divided and this application July 22, 1969, Ser. No. 862,112
Int. Cl. H01l 7/36; 7/44

U.S. Cl. 148—187

6 Claims

A semiconductor device is produced by depositing a p-type doped oxide onto the masked surface of an n-type semiconductor substrate, prediffusing the p-type impurity into the surface of the substrate, removing the center portion of the oxide and further diffusing the p-type dopant from the oxide into the substrate. To form a transistor, an emitter region is diffused into the substrate through the aforementioned center portion.

3,575,743

METHOD OF MAKING A PHOSPHORUS GLASS PASSIVATED TRANSISTOR

Frank Peter Chiovarou, Martinsville, and Adolph Paul Storz, Somerville, N.J., assignors to RCA Corporation

Filed June 5, 1969, Ser. No. 830,806
Int. Cl. H01l 7/36

U.S. Cl. 148—187

8 Claims

Phosphosilicate glass is incorporated as a stabilizer in the passivating oxide on the surface of a diffused planar bipolar transistor by (1) driving in a base diffusion in oxygen for a time less than that required to complete the base diffusion, (2) depositing phosphosilicate glass on the oxidized surface of the transistor, (3) depositing a protective silicon dioxide coating by the pyrolysis of silane, SiH₄, on the phosphosilicate glass, and then (4) densifying the silicon dioxide coating in an oxygen ambient for a time sufficient to complete the base drive-in step.

3,575,744

NITRONIUM PERCHLORATE PROPELLANT COMPOSITION

Thomas N. Scortia, Los Gatos, and Cornelius J. McCormick, Palo Alto, Calif., assignors to United Aircraft Corporation, East Hartford, Conn.

No Drawing. Filed Mar. 27, 1963, Ser. No. 268,457
Int. Cl. C06d 5/00

U.S. Cl. 149—19

2 Claims

1. A process for preparing a propellant containing nitronium perchlorate and a polymeric binder comprising

adding a predetermined quantity of Group Ia metal to said polymeric binder whereby substantially all the water in said binder reacts with the Group Ia metal to form a hydroxide and subsequently adding to said polymeric binder a predetermined quantity of nitronium perchlorate.

3,575,745

INTEGRATED CIRCUIT FABRICATION

Bryan H. Hill, 3213 Lipton Lane, Dayton, Ohio 45430
Filed Apr. 2, 1969, Ser. No. 812,791
Int. Cl. B32b 31/14; H01l 7/50

U.S. Cl. 156—3

5 Claims

A technique for fabricating integrated circuits. The technique takes advantage of the fact that certain oxides such as Al₂O₃ and Ta₂O₅ have their susceptibility to etching materials retarded by irradiation with an electron beam while other oxides such as SiO₂ have their susceptibility to etching materials enhanced by irradiation with an electron beam. By taking advantage of the above facts one can etch openings in selected areas of oxide layers without resorting to complicated masking techniques previously required.

3,575,746

METHOD FOR FORMING RESISTIVE AND PHOTO-ETCHED RESISTIVE AND CONDUCTIVE GLAZE PATTERNS

Eugene M. Cheskis, Scottsdale, Ariz., and Franklyn M. Collins, Lewiston, N.Y., assignors to Air Reduction Company, Incorporated, New York, N.Y.

Filed Dec. 12, 1967, Ser. No. 690,014
Int. Cl. C23f 1/02; H05k 1/00, 3/00

U.S. Cl. 156—8

8 Claims



Precision microminiature electroconductive patterns are formed on a refractory substrate by overcoating the substrate with a thin electroconductive glaze and photo-etching the glazed layer to yield the desired pattern.

3,575,747

CHEMICAL POLISHING OF ALUMINUM

Charles C. Cohn, Atlantic City, N.J., assignor to Samuel L. Cohn and Charles C. Cohn, copartners, trading and doing business as Colonial Alloys Company, Philadelphia, Pa.

No Drawing. Continuation-in-part of application Ser. No. 711,174, Mar. 7, 1968. This application Jan. 21, 1969, Ser. No. 792,857
Int. Cl. C23f 3/00

U.S. Cl. 156—19

7 Claims

Strongly acidic compositions are provided for the bright polishing of aluminum, including its alloys. The compositions are characterized by the presence of nitric acid in amounts ranging from about 0.25% to about 10%, together with an effective nitrous acid content of 0.001% to 1%, or more. Phosphoric acid is used in substantial amounts in compositions giving highly specular finishes; though smoothing is achieved with phosphoric acid as low as 3%. Sulphuric acid is used when the phosphoric acid content is low. Most desirable compositions contain both phosphoric acid and sulphuric acid in total amounts in excess of 60%. The compositions are used at elevated temperatures.

3,575,748

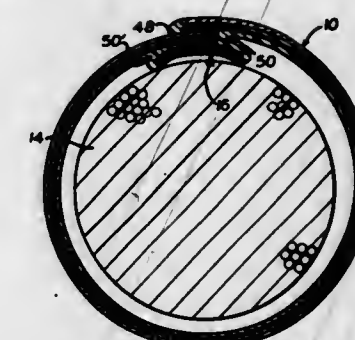
METHOD OF MAKING ELECTRICAL CABLE

Fred F. Polizzano, Allendale, N.J., assignor to General Cable Corporation, New York, N.Y.

Original application May 28, 1968, Ser. No. 732,755, now Patent No. 3,504,102, dated Mar. 31, 1970. Divided and this application Jan. 28, 1970, Ser. No. 6,343
Int. Cl. H01b 13/00

U.S. Cl. 156—54

5 Claims



This improved method of making electrical cable has a cable jacket formed by a tape folded longitudinally around the core of the cable; and the tape is a lamination of a very thin strip of metal, such as aluminum or copper, which serves as a vapor barrier, with a coating on both sides of the metal of much greater thickness than the metal and bonded directly to the metal, preferably by a "chemical bond." A lap seam is preferably reinforced by a longitudinally extending plastic-metal laminate tape under the seam as a "bridging strip" with plastic coating and the confronting faces of the seam are heat-softened and pressed together to bond the edge portions of the seam together.

3,575,749

METHOD FOR MAKING FIBROUS SHEETS OR WEBS

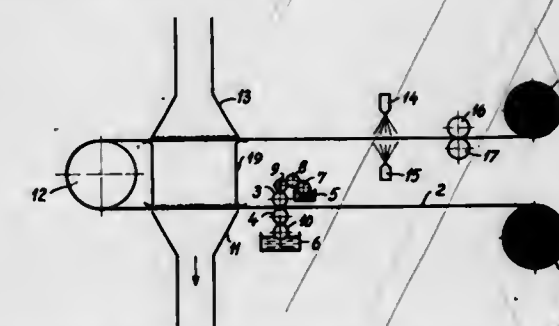
Karl Kristian Kobs Kroyer, Vestre Kongevej 80, Viby J., Denmark

Filed Jan. 4, 1968, Ser. No. 695,688

Claims priority, application Denmark, Jan. 5, 1967, 65/67, 66/67, 67/67; Jan. 6, 1967, 97/67; Jan. 25, 1967, 432/67; Feb. 3, 1967, 623/67; Mar. 10, 1967, 1,264/67; Mar. 15, 1967, 1,356/67
Int. Cl. B29j 5/02, 5/08

U.S. Cl. 156—62.2

3 Claims

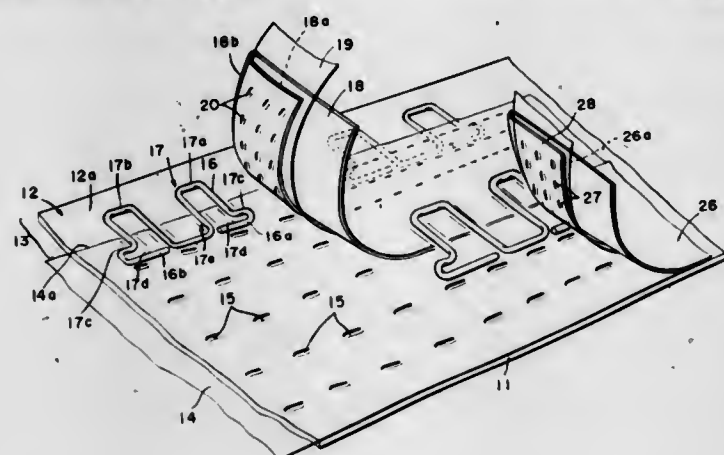


A method of making fibrous sheets or webs containing a binder by causing a stream of gas containing fibres to pass a gas permeable forming surface so as to form a fibre layer thereon and bonding together the fibres of the fibre layer by means of a binder. Apparatus for making fibrous sheets or webs containing a binder which apparatus comprises means for creating a stream of gas containing suspended fibres through a gas permeable forming surface so as to form a fibre layer thereon, means for applying a binder to the fibres and means for causing the binder to bind together the fibres of said fibre layer. Plate material consisting of a number of embossed fibre sheets which are glued together and which are formed by causing a stream of gas containing suspended fibres to pass through a permeable forming surface so as to form a fibre layer thereon and bonding together the fibres of the fibre layer by means

of a binder. Fibrous sheet or web consisting of two outer layers which have been prepared from cellulosic fibres and other fibres, if any, and a binder by causing a stream of gas containing suspended fibres to pass a gas permeable forming surface so as to form a fibre layer thereon and bonding together the fibres of the fibre layer by means of said binder and at least one intermediate cellulosic fibre layer which is bonded to the inner side of the outer layer(s) by means of a binder.

3,575,750 HOOK-EQUIPPED FABRIC STRUCTURE FOR GARMENTS AND METHOD OF PRODUCING SAME

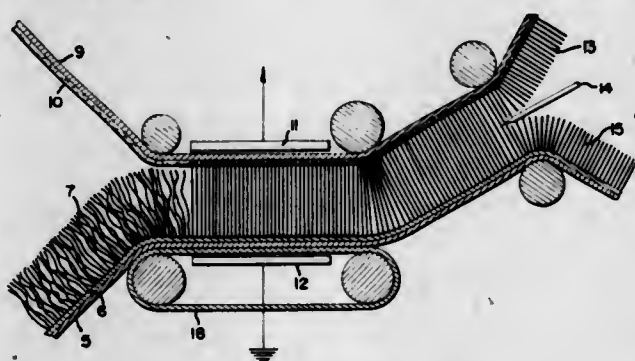
Takashi Sakamoto, Osaka, Japan, assignor to Sakamoto Hook Kogyo Kabushiki Kaisha, Osaka-shi, Japan
Filed Apr. 1, 1968, Ser. No. 717,758
Claims priority, application Japan, Apr. 1, 1967, 42/20,323
Int. Cl. A41h 37/00; A44b 19/04
U.S. Cl. 156-66 5 Claims



A hook-equipped fabric structure for garments including brassieres and a method of producing the same, wherein a hook interposed between superimposed fabric bodies is provided at its closed end portion with means defining an opening, the axis of which lies substantially normal to said confronting fabric bodies, with said superimposed fabric bodies being thereafter laminated firmly together by resinous material, at least one of said laminated fabric bodies being deformed complementally to the configuration of one side portion of the hook, thereby firmly attaching the hook to the fabric bodies.

3,575,751 METHOD OF MAKING SEMIARTIFICIAL PILE FABRICS

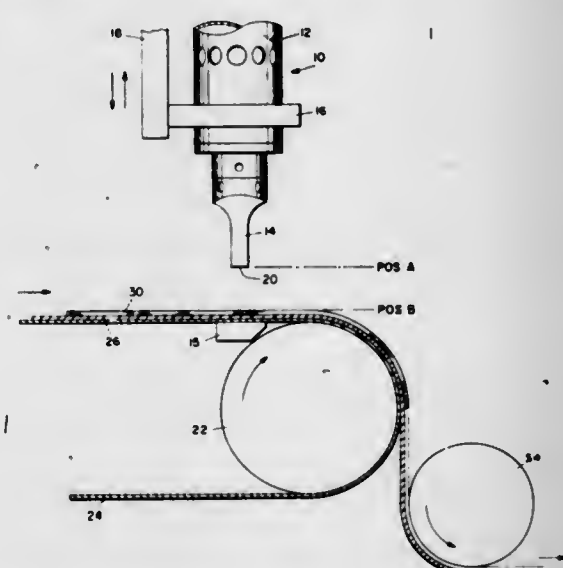
Louis R. Mizell, Montgomery County, Md., assignor to I.W.S. Nominee Company Limited, London, England
Continuation of application Ser. No. 484,240, Sept. 1, 1966. This application Jan. 15, 1969, Ser. No. 796,276
Int. Cl. C14b 1/02, 15/00; B32b 5/24
U.S. Cl. 156-68 18 Claims



Pile fabrics or porous artificial leather is made utilizing woolled or furred animal skins without detaching the wool or fur from the skins prior to attaching the free ends of the wool or fur to a second base thus resulting in a thicker, fuller more natural appearing product.

3,575,752 NONWOVEN BONDING METHOD

Charles W. Carpenter, Green Acres, Del., assignor to Hercules Incorporated, Wilmington, Del.
Filed May 22, 1968, Ser. No. 731,222
Int. Cl. B29c 27/08; B32b 31/16
U.S. Cl. 156-73 5 Claims



A self-bonded nonwoven fibrous sheet is made by (1) disposing an at least partially thermoplastic, oriented fibrous material upon a surface in random, multi-directional, overlapping and intersecting arrangement to form a batt or web and (2) imposing a source of sonic energy upon the batt or web to selectively heat and bond the fibrous elements at their points of contact or crossover.

3,575,753 METHOD OF MAKING A LEATHER-LIKE LAMINATED MATERIAL HAVING A POLYVINYL ACETALIC POROUS LAYER

Mitsuru Maruya, Tokyo, and Yoshio Oono and Bunji Fukuda, Ichikawa, Japan, assignors to Kanegafuchi Boseki Kabushiki Kaisha
No Drawing. Filed Nov. 15, 1968, Ser. No. 776,275
Int. Cl. B32b 5/18
U.S. Cl. 156-77 11 Claims

This invention relates to a new method of making a leathery porous sheet material consisting of a polyvinyl acetalic porous layer and a fibrous base layer.

3,575,754 MANUFACTURE OF THERMOPLASTIC SHEET MATERIAL

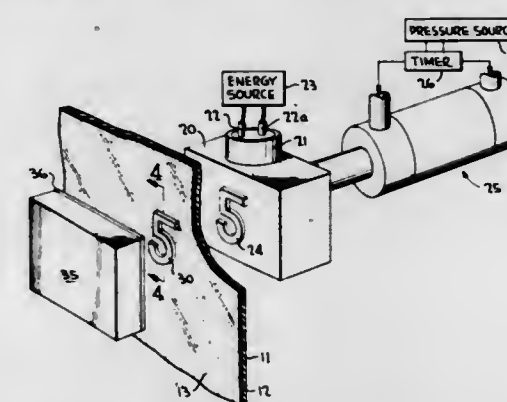
Alan Duerden, Hyde, England, and Samuel Gourley, Saltcoats, Scotland, assignors to Imperial Chemical Industries Limited, London, England
Continuation-in-part of application Ser. No. 255,382, Jan. 31, 1963. This application June 11, 1968, Ser. No. 736,228
Claims priority, application Great Britain, Jan. 31, 1962, 3,689/62
Int. Cl. B32b 5/18, 31/18
U.S. Cl. 156-79 11 Claims

A process for making a thermoplastic sheet which comprises the steps of progressively spreading a paste of a thermoplastic material upon a continuously moving silicone elastomer band having a predetermined surface configuration, heating the paste thereby effecting gelation of said thermoplastic material as an integral sheet and removing the hot sheet from the band. In preference the sheet is provided with a backing material. The process is particularly suited to the manufacture of sheet from pastes based on polymers or vinyl chloride. The paste may be applied on the band in two distinct applications using different pastes for each application. Typically a first layer is formed on the band using a paste which

does not include a blowing agent and then a second layer is formed on top of the first layer using a paste which includes a blowing agent. When the double layer is heated the blowing agent decomposes forming a multitude of cells in the second layer and at the same time the first and second layers are gelled. The silicon elastomer band may have a smooth or contoured surface pattern. Also the hot sheet may be embossed immediately after it is removed from the band.

3,575,755 CODE DATING WITH HEAT SHRINKABLE AND PRESSURE FEATURES

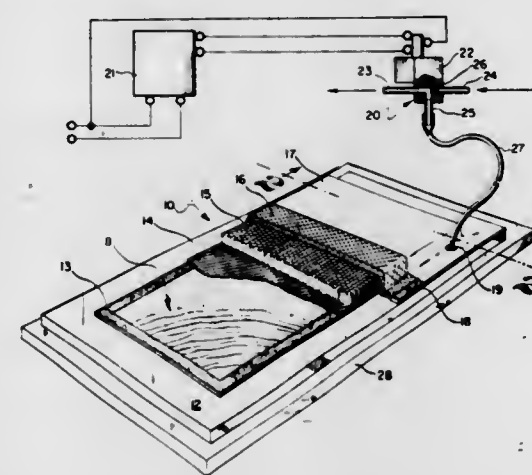
Duncan B. Cutler and Nelson R. Henry, Decatur, Ga., assignors to The Woodman Company, Inc., Decatur, Ga.
Filed Sept. 8, 1967, Ser. No. 666,278
Int. Cl. B31f 1/00
U.S. Cl. 156-85 13 Claims



Marking of packaging material utilizing an existing ink layer in the material and an adjacent heat shrinkable layer by applying heat in the form of indicia to cause withdrawal of said layers to allow the different colored base sheet to show through. Also, withdrawal of the ink layer may be by pressure of a raised indicia against a rigid backing to cause said ink layer to be squeezed away, and the heat and pressure is applied to the back side of said base sheet with the rigid backing being Teflon-coated to prevent adherence of said layers.

3,575,756 LAMINATED STRUCTURAL MEMBERS

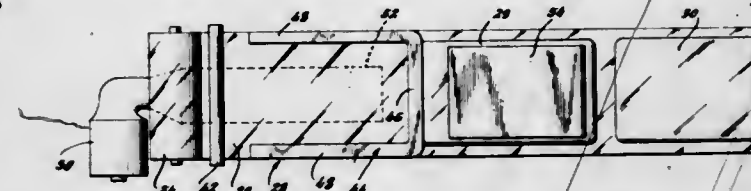
Louis Maus, Tulsa, Okla., assignor to North American Rockwell Corporation
Filed Oct. 15, 1968, Ser. No. 767,756
Int. Cl. C03c 27/10; B23b 17/04
U.S. Cl. 156-103 7 Claims



Apparatus and methods are disclosed for vacuum-bag manufacture of thermosetting resin-impregnated fabric layers into forms suitable for structural member applications.

3,575,757 PROCESS FOR MAKING INFLATED ARTICLES

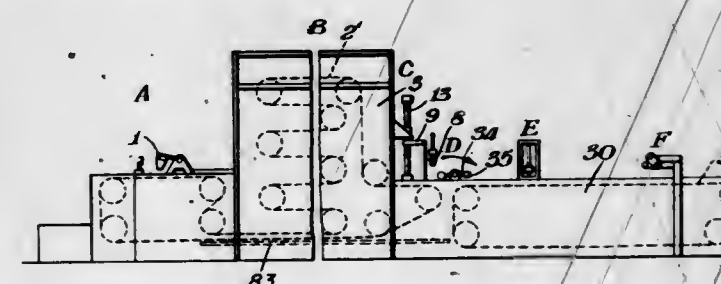
Millard F. Smith, Westport, Conn., assignor to Reinforced Air Corporation, Old Lyme, Conn.
Filed Dec. 8, 1967, Ser. No. 689,155
Int. Cl. B32b 31/00
U.S. Cl. 156-147 14 Claims



Parallel opposed sheets are bonded together in a U-shaped seal to form a pocket. The pocket is inflated by a controlled amount, then sealed off by forming a new pocket wherein the bottom of the second U-shaped seal overlaps the ends of the first U-shaped seal. The sealed inflated pocket may be further sub-divided into smaller inflated pockets by further sealing.

3,575,758 PROCESS AND ASSEMBLY FOR THE PRODUCTION OF CERAMIC MOLDED ARTICLES

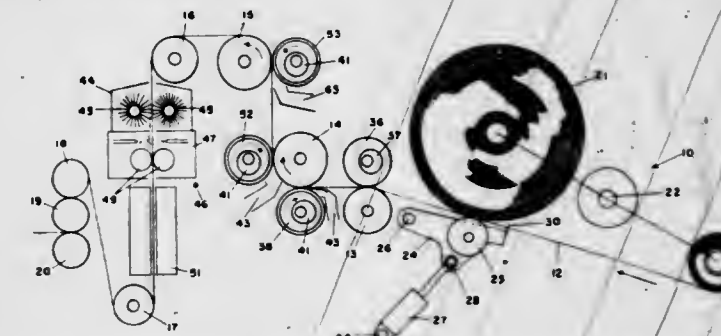
Willy John, Postfach 105, Selb, Germany
Filed July 29, 1966, Ser. No. 568,921
Claims priority, application Germany, July 31, 1965, N 27,115; Feb. 1, 1966, N 27,981
Int. Cl. B28b 5/02, 11/02
U.S. Cl. 156-153 11 Claims



A process and assembly for finishing ceramic molded articles formed on assembly lines includes transferring the articles in a pre-dried state in plaster forms from a drying station to a removal station, depositing the removed articles on a pattern turnover device and then at a polishing station while simultaneously rotating the articles, polishing the rotating articles, applying adhesive thereto, and attaching handles to the articles.

3,575,759 METHOD FOR SPLICING WEBS

Bruno B. Pasquinelli, Evergreen Park, Ill., assignor to Miehle-Goss-Dexter, Incorporated, Chicago, Ill.
Filed Apr. 8, 1968, Ser. No. 719,437
Int. Cl. B65h 19/18
U.S. Cl. 156-159 4 Claims



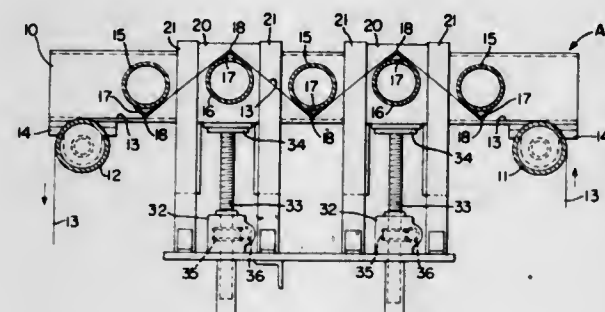
The invention is directed to a method for splicing relatively thick, cardboard webs wherein a simple overlap splice is first effected whereupon the spliced web is di-

rected through abrading means to thereby reduce the double web thickness of the splice to substantially normal web thickness.

3,575,760
METHOD FOR JOINING FABRIC TO FABRIC USING AN ADHESIVE THREAD
Milton Goldstein, Yonkers, N.Y., and George R. Hair, Clifton, Jack Kutzenko, Westfield, and Jacques J. Marchand, Newark, N.J., assignors to Bondit Corporation, Rahway, N.J.
Filed July 17, 1967, Ser. No. 653,787
Int. Cl. B32b 5/00

U.S. Cl. 156-176 **8 Claims**
A method for joining sheet material is disclosed in which the material to be joined is fed from supply rolls, a dry monofilament adhesive is interfed between the materials in the area thereof to be joined, the material and the interfed adhesive is then concurrently compressed and subjected to radio frequency heating energy whereby the adhesive melts and covers the sheet areas to be joined. The adhesive hardens as the material advances beyond the vicinity of the radio frequency field and is rewound on a take-up roll.

3,575,761
FLEXING TREATMENT OF TEXTILE CORDS
Owen B. Funsch, Akron, and Grover W. Rye, Cuyahoga Falls, Ohio, assignors to The Goodyear Tire & Rubber Company, Akron, Ohio
Filed Jan. 16, 1967, Ser. No. 609,502
Int. Cl. B29h 17/28
U.S. Cl. 156-199 **9 Claims**



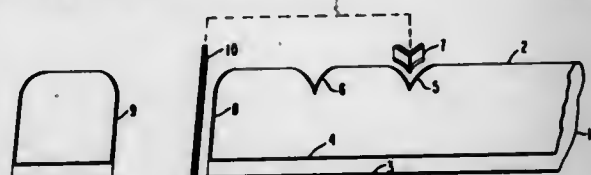
A method and apparatus for treating textile cords formed of thermoplastic fibers such as nylon and polyester and especially the cords used in the manufacture of pneumatic tires where the cords are normally coated with an adhesive and hot-stretched. The treatment includes drawing the cords longitudinally while under tension over an edge or other means to provide a bend in or to flex the cords and reduce their stiffness.

3,575,762
METHOD OF LAMINATING AN EXTRUDED THERMOPLASTIC FILM TO A PREHEATED THIN METAL FOIL WEB
Clifford Clayton Goehring, Princeton, and Arthur C. Hart, Jr., Ironia, N.J., assignors to American Can Company, New York, N.Y.
Continuation-in-part of abandoned application Ser. No. 625,359, Mar. 23, 1967. This application Sept. 23, 1969, Ser. No. 867,112
Int. Cl. B29c 19/00

U.S. Cl. 156-244 **9 Claims**
A method of adhering a molten, synthetic, thermoplastic, film-forming, polymeric material to a metal foil web in a continuous web process to form a laminate. In order to eliminate wrinkling of the thin metal foil when it is heated to the extrusion temperature, the foil, in its original coil is preheated and then maintained at approximately the extrusion temperature throughout the laminating process.

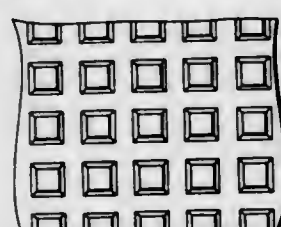
3,575,763
METHOD AND APPARATUS FOR FABRICATING HIGH IMPACT STRENGTH, CONTOURED-BOTTOM BAGS
Harold E. Ramsey, Wilmington, Del., assignor to E. I. du Pont de Nemours and Company, Wilmington, Del.
Filed Dec. 7, 1967, Ser. No. 688,717
Int. Cl. B32b 31/18

U.S. Cl. 156-251 **9 Claims**



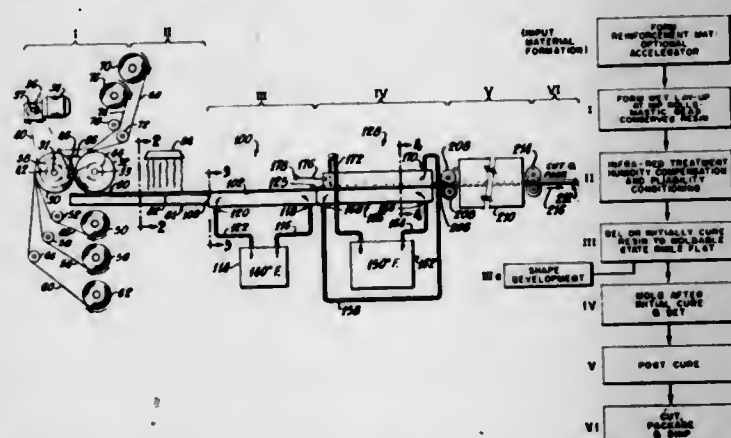
An improved method and apparatus for fabricating high impact strength, contoured bottom bags which comprises advancing a folded heat sealable, thermoplastic web, a first sealing and severing operation by a generally triangularly shaped knife to form contoured bottom corners, a second sealing and severing operation in a transverse direction to complete the transverse seams while maintaining continuity of the seams resulting from the two successive operations, and gathering the fabricated bags.

3,575,764
BONDING FABRICS
Gerald A. McFarren, Winterbury, Wilmington, Del., assignor to Hercules Incorporated, Wilmington, Del.
Filed Mar. 3, 1969, Ser. No. 803,704
Int. Cl. C09j 5/06
U.S. Cl. 156-309 **7 Claims**



Air-pervious fabric structures can be prepared by bonding the fibers in nonwovens or bonding fabrics to form laminates using as the bonding material oriented thermoplastic films having an overall melt embossed pattern.

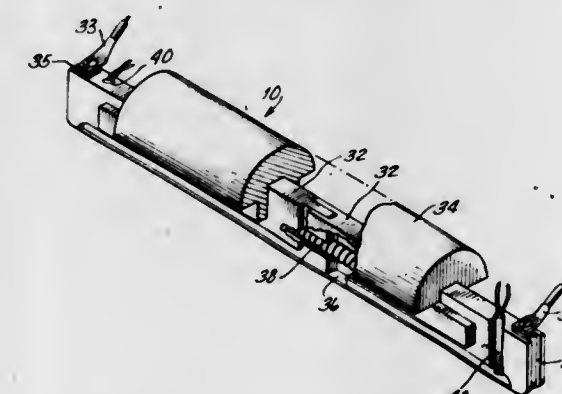
3,575,765
PROCESS OF FORMING A SYNTHETIC RESIN PANEL
Ralph H. Sonneborn, Fernando Alvarez de Toledo, and Ronald Z. Bell, Huntingdon, Pa., assignors to Owens-Corning Fiberglass Corporation
Original application Apr. 4, 1963, Ser. No. 270,727, now Patent No. 3,291,672, dated Dec. 13, 1966. Divided and this application Aug. 9, 1966, Ser. No. 585,215
Int. Cl. C09j 3/00
U.S. Cl. 156-332 **3 Claims**



Method for producing a thin synthetic resin panel by forming a layer of polymerizable, thermosetting, liquid,

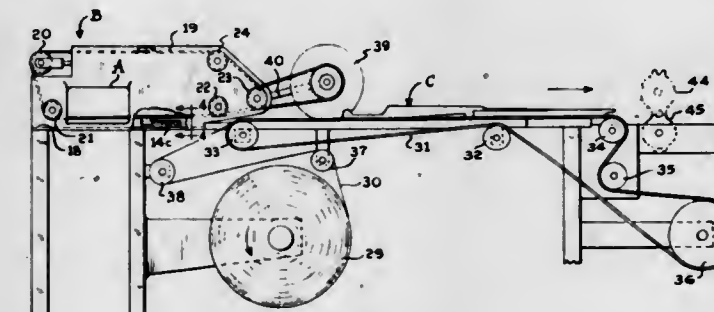
synthetic resin syrup and a fibrous reinforcement mat into a lay-up, then heating the lay-up to a temperature sufficient to initiate polymerization of the resin, withdrawing exothermic heat of polymerization to control rate and degree of polymerization, and simultaneously molding the lay-up to selected cross section.

3,575,766
BAND SEALER FOR CIGARETTE OR FILTER MAKER
Colin Shaw McArthur, Winston-Salem, and Max Norris Baker, Rural Hall, N.C., assignors to R. J. Reynolds Tobacco Company, Winston-Salem, N.C.
Filed Oct. 29, 1968, Ser. No. 771,399
Int. Cl. B32b 31/20
U.S. Cl. 156-359 **4 Claims**



A band sealer for sealing the margins of cigarette wrapper paper or cigarette filters using a thin strip heater element. The sealer comprises a plurality of non-conducting coaxially-interconnected sealer blades with a weighted housing for holding the blades against the wrappers to be sealed, a small and narrow metal heating element connected to and extending across the base of the blades engaging the wrappers and responsive to rapid changes in temperature, a spring urging the blades apart for holding the heating element taut so that it will apply even heat to the wrappers, and a control circuit including thermocouple sensors and an operational amplifier which increases the strength of the signals sent by the thermocouple sensors for maintaining the heating element at a predetermined temperature.

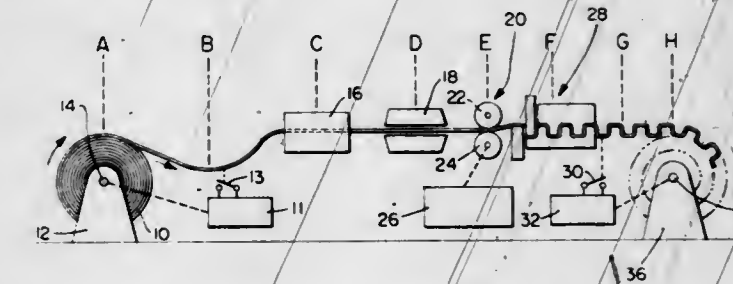
3,575,767
MECHANISM FOR SANITARY NAPKIN PRODUCTION
Charles T. Banks, Neenah, Wis., assignor to Kimberly-Clark Corporation, Neenah, Wis.
Filed Sept. 22, 1967, Ser. No. 669,805
Int. Cl. B32b 31/02; A61f 13/16
U.S. Cl. 156-383 **4 Claims**



A sanitary napkin making machine including an assembly for stamping out internal napkin pads and for applying them in spaced relation onto a traveling gauze web, an assembly for folding marginal portions of the gauze web over so as to envelope the pads with the web, an assembly for sealing the upper and lower layers of the

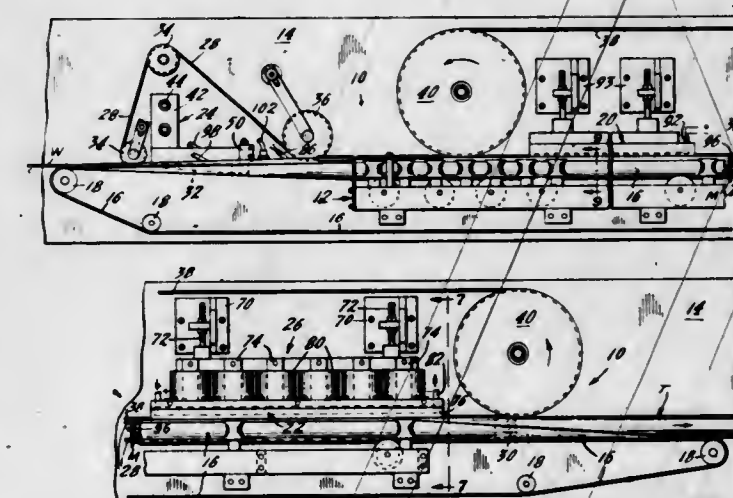
enveloping gauze web with respect to each other and for simultaneously thrusting side edge portions of the enveloping gauze web toward each other during sealing, and an assembly for transversely cutting the sealed portions of the gauze web so as to form the individual napkins.

3,575,768
MACHINE FOR MAKING CORRUGATED FIBRE
Joseph R. Hannum, Norristown, Pa., assignor to The Budd Company, Philadelphia, Pa.
Filed Apr. 1, 1968, Ser. No. 717,622
Int. Cl. B31f 1/22
U.S. Cl. 156-459 **7 Claims**



An article of manufacture comprises a strip of corrugated fibre with the corrugations being substantially square and being formed against the grains which run lengthwise in the fibre. Means and methods for making such corrugated fibre are also provided.

3,575,769
TUBE SIDE SEAMING METHOD AND APPARATUS
Carl Radzio, Washington, N.J., assignor to American Can Company, New York, N.Y.
Filed Mar. 27, 1968, Ser. No. 716,495
Int. Cl. B29d 23/10
U.S. Cl. 156-466 **17 Claims**

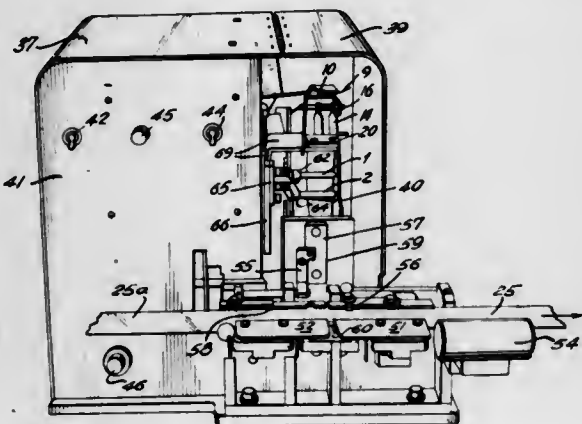


Longitudinal seaming apparatus and method for tubed plastic web material having a floating mandrel for internally supporting the tube during longitudinal seam welding and cooling, wherein the mandrel is magnetically supported at its downstream entubed free end as well as being rotatably and vertically adjustable from its upstream mounting externally of the tube to precisely shape the longitudinal tube seam.

3,575,770
FILM SPLICING APPARATUS
Stanislaw A. Policht, Closter, N.J., assignor to Berkey Photo Inc., New York, N.Y.
Filed Sept. 27, 1968, Ser. No. 763,322
Int. Cl. B31f 5/00; B65h 21/00
U.S. Cl. 156-506 **10 Claims**

A film splicing apparatus is shown for attaching two lengths of undeveloped film in end to end relationship for photographic processing including developing, printing,

etc. A schematic drawing is shown of means to apply a tape patch to the closely adjacent ends of the film. The structure involves a pushing member making contact with the center of the patch and spreading outwardly across the patch as pressure is applied thereto. Upon reaching the end of the patch the wiping mechanism moves back to the center thereby providing a double wiping pres-



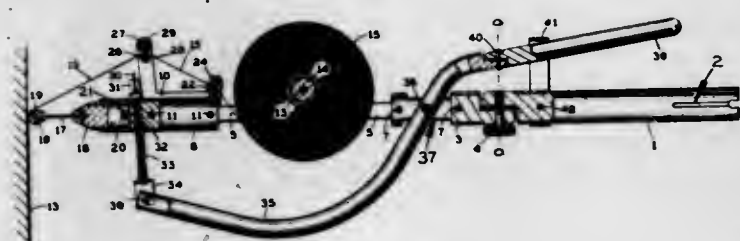
sure for the tape patch against the film. The apparatus for severing the tape patch is shown together with linkage means for feeding a predetermined length of tape to a cutter for pick up and transfer to the film. The tape supply roll is shown in a replaceable cartridge incorporating means holding the end of the tape in proper relationship for engagement by the cutter immediately upon the introduction of the cartridge to the splicing apparatus.

3,575,771 TAPE DISPENSER FOR PLASTERBOARD JUNCTIONS

Edwin Padgett, 630 SW. 7th Ave.,
Hallandale, Fla. 33009
Filed June 6, 1969, Ser. No. 830,986
Int. Cl. B32b 31/18; B44c 7/02

U.S. Cl. 156—523

5 Claims



A manually operated device for applying pressure sensitive adhesive reticular tape from a roll retained thereon to the junctions of plasterboard, commonly called wall-board or hard lath, over which a coating of plaster or other coating is applied. The device is adapted for rapid smooth application of the tape over the junctions of lath on the walls, ceilings and corners of a room by manual manipulation of the device.

3,575,772 GILDING MACHINE

Raymond T. Billings, 260 S. Broadway,
Yonkers, N.Y. 10706
Continuation-in-part of application Ser. No. 280,035,
May 13, 1963. This application Mar. 3, 1966, Ser.
No. 531,469

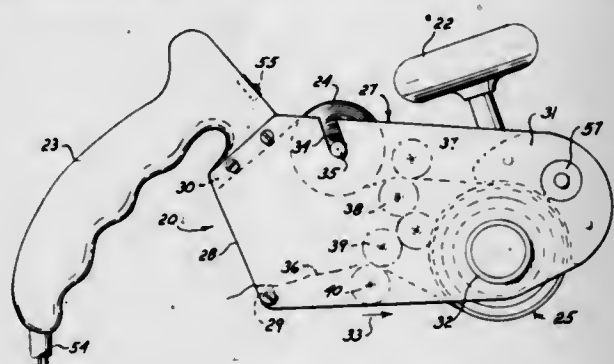
Int. Cl. B44c 1/16, 1/24; C23c 17/00

U.S. Cl. 156—540

9 Claims

A hand held machine and method of operation for applying a heat releasable coating to the surface of an article from a coating carrying film comprising a frame

and an application roller mounted for rotation on said frame and having a heat conducting surface. The roller has a supplying station, a transfer station and a take-away station on the roller. Means are provided for raising the temperature of the heat conducting surface to the coating releasing level and for supplying the coating carry-



ing film to the roller at the supplying station for advancement through the transfer station and take-away station. Take-away means are mounted on the frame for drivingly engaging the film and drawing the film away from the application roller after the heat release and transfer of the coating to the article's surface.

3,575,773 LIGHT REFLECTIVE DEVICE

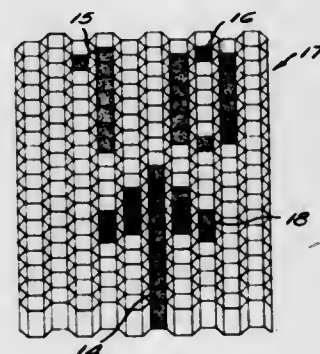
Louis B. Courtot, 25801 Lake Shore Blvd.,
Euclid, Ohio 44132

Filed Dec. 28, 1967, Ser. No. 694,166

Int. Cl. B44f 1/00; B32b 3/12

U.S. Cl. 161—5

8 Claims



A light reflective panel for decorative and informative purposes which is substantially immune to deterioration from natural elements and heavy transverse loading conditions is provided. A core material having selectively colored light reflective surfaces, parallel to the plane of the array, is arranged so that the colored pattern differs and is totally obscured in some direction depending on the viewing angle and orientation relative to a light source. The core material is encapsulated within or sandwiched between transparent materials in order to maintain the orientation of the array of light reflective surfaces and to preserve their integrity.

3,575,774 DECORATIVE FOLDED HONEYCOMB STRUCTURE AND METHOD OF MAKING SAME

Erik N. Vest, Strammelse, Landet, Tasinge, Denmark,
assignor to Svendborg Kofliffonfabrik Ltd., Svendborg,
Denmark, and The Amscan Company, Inc., Harrison,
N.Y., fractional part interest to each

Filed Sept. 18, 1968, Ser. No. 760,500

Int. Cl. A41g 1/00

U.S. Cl. 161—27

14 Claims

A plurality of layers of sheet material are combined in a honeycomb structure which can be expanded from

a folded condition and then twisted and compressed at the central portions thereof to provide a decorative object



having an appearance simulating a structure of a plant such as a flower blossom.

3,575,775 WINDABLE INSULATING TAPE WITH SPACERS AND METHOD OF MANUFACTURING SUCH TAPE

Lars Andersson, Stig Larbo, Sture Lindskog, and Otto
Johansson, Ludvika, Sweden, assignors to Allmänna
Svenska Elektriska Aktiebolaget, Vasteras, Sweden

Filed Aug. 4, 1969, Ser. No. 847,014

Claims priority, application Sweden, Aug. 30, 1968,
11,646/68

Int. Cl. H01f 27/32; B32b 1/04

U.S. Cl. 161—39

4 Claims



An insulating tape with spacers for forming axial channels in windings of coils for transformers is formed by applying at spaced intervals along a side of a continuous base insulating tape coated with an adhesive rolls of an insulating tape likewise coated on one side with an adhesive and applying heat and pressure. Each roll has a projecting portion also adhesively secured to the main tape.

3,575,776 INFLATABLE FABRIC

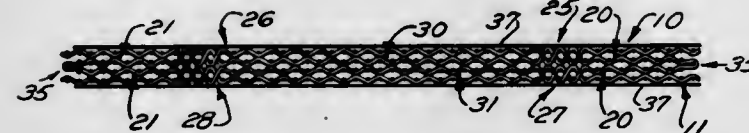
John A. MacIntyre, Barrington, R.I., assignor to
U.S. Plush Mills, Inc.

Filed Nov. 19, 1968, Ser. No. 777,006

Int. Cl. D03d 1/02; A45f 1/02; D06m 17/00

U.S. Cl. 161—49

3 Claims



A fabric having spaced woven layers with a woven web extending between the layers and woven into each of the spaced layers with a woven ply between the points of connection of the web to the spaced layers forming in collapsed condition a substantially smooth multi-ply fabric of the same thickness throughout its length and width for ease in uniformly coating the outer surface of the layers.

3,575,777 INTEGRATED PAPER NETTING

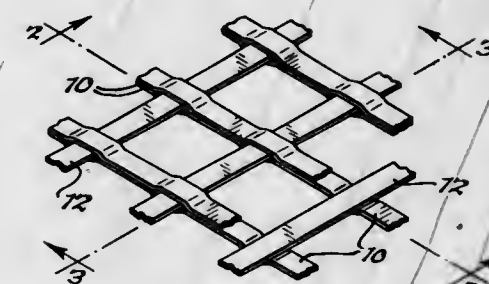
Walter F. Allport, Stamford, Conn., assignor to International Paper Company, New York, N.Y.

Continuation-in-part of application Ser. No. 600,899,
Dec. 12, 1966. This application Oct. 4, 1968, Ser.
No. 777,944

Int. Cl. B32b 3/00, 5/12

U.S. Cl. 161—57

5 Claims



An integrated netting made from sets of paper or plastic warp and weft strands adhered together between the intersections of the warp and weft strands to form a tough, flexible tear-resistant netting. The netting may be rendered moisture or vapor-proof through the additional lamination of paper or plastic sheet material. Processes and equipment for forming multiple strands and various combinations of warp and weft strands so as to vary the characteristics and properties of the netting are shown.

3,575,778 PILE FABRIC FLOOR COVERING

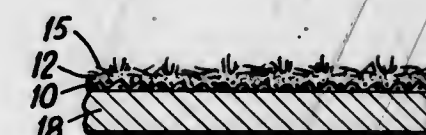
Roger L. Wilcox, P.O. Box 534,
Amagansett, N.Y. 11930

Filed Feb. 16, 1968, Ser. No. 705,976

Int. Cl. D04h 11/00

U.S. Cl. 161—63

4 Claims



As an article, and its method of manufacture, a floor covering or the like, having a non-woven pile surface, comprising a backing, a layer of flexible plastic secured to the backing and a multiplicity of yarn segments overlying the plastic ply and secured thereto as a pile tread surface cover by adhesion thereto and by embedment therein along spaced lanes of depression formed in the plastic ply, a plurality of yarn segments adjacent to said lanes of depression having ends deflected upwardly to present pile-like tufts.

3,575,779 MEMBRANES AND LAMINATES OF CHLORINATED LINEAR POLYETHYLENE

Wilbur F. Chapman, Convent Station, Charles J. Klasen,
Dover, and James J. Malone, Jr., Wayne, N.J., assignors
to Allied Chemical Corporation, New York, N.Y.
No Drawing. Continuation-in-part of application Ser. No.
446,091, Apr. 6, 1965. This application June 21, 1967,
Ser. No. 650,574

Int. Cl. B32b 17/04; C08f 29/04

U.S. Cl. 161—89

7 Claims

Novel plastic membranes and membrane laminates useful in one-ply roofing systems and in similar applications may be prepared from chlorinated linear polyethylene plus filler, stabilizer and pigment. The chlori-

nated linear polyethylene comprises a mixture of two linear polyethylenes of different compositions and the stabilizer is a mixture of 3,4 epoxy-6-methylcyclohexylmethyl 1-3, 4-epoxy-6-methylcyclohexanecarboxylate; 2,6-ditert-butyl-4-methylphenol, and an alcohol selected from the group consisting essentially of sorbitol, pentaerythritol and mixtures thereof.

3,575,780

SURFACE FOR PLAYING FIELDS

Hans-Georg Trieschmann, Hambach, Leo Unterstenhoefer, Limburgerhof, Siegfried Maier, Speyer, and Heinz Berber, Weiher, Germany, assignors to Badische Anilin- & Soda-Fabrik Aktiengesellschaft, Ludwigshafen (Rhine), Germany.

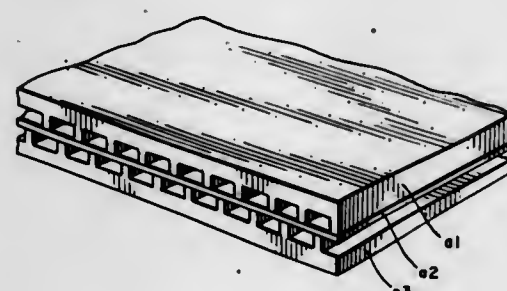
Filed May 6, 1969, Ser. No. 822,183

Claims priority, application Germany, May 10, 1968, P 17 03 373.7

Int. Cl. B32b 3/12, 3/30; A63j 3/00

U.S. Cl. 161-123

1 Claim



Special surfaces for playing fields comprising an upper layer a_1 , a middle layer a_2 and a lower layer a_3 , layers a_1 and a_3 consisting of a thermoplastic molding material having a special composition. The layers a_1 and a_3 are webs or boards having parallel ribs on one side, and the layer a_2 is a strip or sheet of steel or plastics material. The ribs on the layers a_1 and a_3 are in contact with the middle layer a_2 and arranged in such a way that they are staggered at equal distances in relation to each other.

3,575,781

PLASTIC FILM WRAPPING MATERIAL

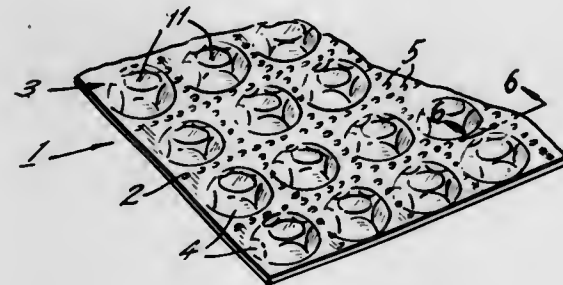
Joseph M. Pezely, Newark, Del., assignor to Stauffer Hoechst Polymer Corporation, Delaware City, Del.

Filed May 16, 1969, Ser. No. 825,254

Int. Cl. B32b 3/30; B65d 65/02, 65/38

U.S. Cl. 161-131

12 Claims



Transparent film wrapping material having hemispherical protuberances spaced thereon is described herein. Each of the protuberances is provided with a plurality of facets thereon to provide ridges therebetween that will disperse a crushing force in several different resultant directions. Thus, the wrapping material absorbs the shock and maintains the item wrapped therein in a safe condition.

3,575,782
ELASTIC SHIRRED WEB PRODUCT
Paul E. Hansen, North St. Paul, Minn., assignor to Minnesota Mining and Manufacturing Company, St. Paul, Minn.

Filed May 19, 1967, Ser. No. 639,689

Int. Cl. D04h 5/04

U.S. Cl. 161-141

10 Claims



A covering material consists of partially extended spaced aligned elastic yarns sealed between two thin porous gathered non-woven fibrous webs, or between a web and a non-porous film, by means of a soft flexible polymeric coherent binder.

3,575,783

UNIDIRECTIONAL FIBER REINFORCED METAL MATRIX TAPE

Kenneth G. Kreider, Glastonbury, Conn., assignor to United Aircraft Corporation, East Hartford, Conn.

Filed Nov. 13, 1968, Ser. No. 775,246

Int. Cl. D04h 5/00

U.S. Cl. 161-143

6 Claims



A unidirectional fiber-reinforced heterogeneous matrix tape having superior off-axis strength comprising a plurality of high strength, high modulus filaments, a first metal matrix material substantially encasing the filaments and a second metal matrix material of substantially higher strength relative to the first matrix material bonded to and in laminar relation with the filaments and the first matrix material.

3,575,784

BONDED NONWOVEN SHEET

Brian R. Phillips and Richard D. Hutchins, Wilmington, Del., assignors to E. I. du Pont de Nemours and Company, Wilmington, Del.

No Drawing. Filed Feb. 28, 1969, Ser. No. 803,425

Int. Cl. D04h 1/04

U.S. Cl. 161-150

2 Claims

The invention relates to a bonded nonwoven sheet of randomly distributed continuous polyester filaments, said sheet having a net irreversible thermal shrinkage in the lengthwise and widthwise directions of between about 1.2 and 5% when heated to about 170° C. and cooled. The sheet is used as a reinforcing layer in a foamed rubber carpet underlay.

3,575,785

PREFORMED ARCHITECTURAL SURFACE COVERING COMPOSITION

Robert J. McManis, Des Peres, and Ross M. Hedrick, St. Louis, Mo., assignors to Monsanto Company, St. Louis, Mo.

No Drawing. Continuation-in-part of abandoned application Ser. No. 518,019, Jan. 3, 1966. This application Jan. 21, 1969, Ser. No. 792,759

The portion of the term of the patent subsequent to June 6, 1984, has been disclaimed and dedicated to the Public

Int. Cl. B32b 5/16, 19/02; C08f 45/04

U.S. Cl. 161-162

28 Claims

An architectural surface composite, such as a flooring composite, comprising an architectural surface and a pre-

formed resinous covering composition, said composition comprising an inorganic filler and a polyalkyl methacrylate. Also disclosed is a process for covering an architectural surface, such as a floor or wall, with the above-described covering composition.

3,575,786

SHIELD INTERLAYER FOR SPALL SUPPRESSION

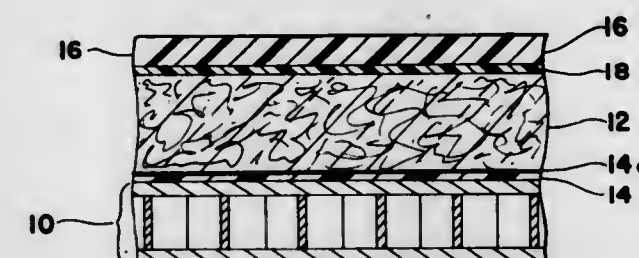
Ronald E. Baker, Phoenix, Richard L. Cook, Flagstaff, and Edwin C. Stigel, Phoenix, Ariz., assignors to Good-year Aerospace Corporation, Akron, Ohio

Filed Dec. 26, 1968, Ser. No. 786,870

Int. Cl. B32b 5/04; B64c 1/12

U.S. Cl. 161-165

4 Claims



A dual layer composite laminate consisting of ballistic nylon felt with a peripheral seal coat and a urethane elastomer, bonded to the internal surface of a wall, floor, or other part of vehicle structure. The felt side is placed against the structure, to be protected, and the urethane side is exposed. The nylon felt is an efficient fragment catcher, and also provides stand-off which allows the cone of spall to expand and be suppressed instead of following the projectile directly through the wound. The urethane elastomer surface is highly restrictive and tear resistant. It constricts the spall pattern and keeps the felt from spreading excessively as a projectile passes through.

3,575,787

PLASTIC BEARING-BUSHING MATERIAL

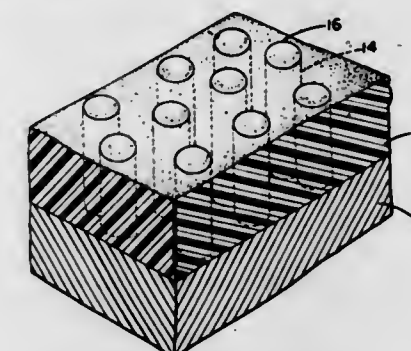
Thomas W. Pietrocini, Wickliffe, and Milton L. Selker, Shaker Heights, Ohio, assignors to Clevite Corporation

Filed Jan. 13, 1969, Ser. No. 790,769

Int. Cl. B32b 27/08, 15/02; B29d 31/02

U.S. Cl. 161-165

12 Claims



A steel backed plastic bearing-bushing material having a polyimide bearing surface provided with cavities which are filled with polytetrafluoroethylene and a metal bearing phase.

3,575,788

ADHESIVE COATED LABEL WITH A SILICONE RESIN RELEASE COATING APPLIED THERETO

Murray Clifford Funk, Menasha, and Edward Albert Rofalska, Jr., Sherwood, Wis., assignors to American Can Company, New York, N.Y.

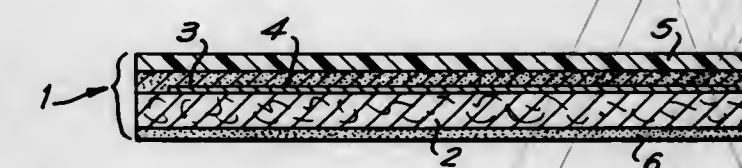
Filed Apr. 18, 1968, Ser. No. 722,353

Int. Cl. B32b 7/06; C09j 7/00

U.S. Cl. 161-167

1 Claim

An adhesive coated label includes a coated paper construction having a paper base printed with label's message



ient use. The method by which the label is made includes printing the label, applying a release agent in coated form, curing the release agent and thereafter applying an adhesive coating to the underside of the label.

3,575,789

FIBER CERAMIC COMPOSITES AND METHOD OF PRODUCING SAME

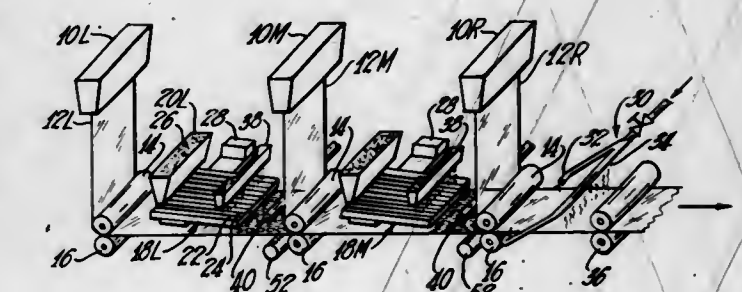
August C. Siefert, Granville, and Fred T. Sens, Newark, Ohio, assignors to Owens-Corning Fiberglass Corporation

Filed Dec. 27, 1966, Ser. No. 604,974

Int. Cl. B32b 3/26, 5/18

U.S. Cl. 161-193

19 Claims



A high temperature resistant structural material comprising first and second ribbons of solid vitreous material having a thickness between approximately 0.001 and 0.005 inch, and a layer of fibers intermediate said ribbons, the ribbons having portions which surround and wet the fibers and which are fused together to unite the ribbons.

3,575,790

FOG RESISTANT GLASS WITH WATER INSOLUBLE POLYVINYL ALCOHOL FILM

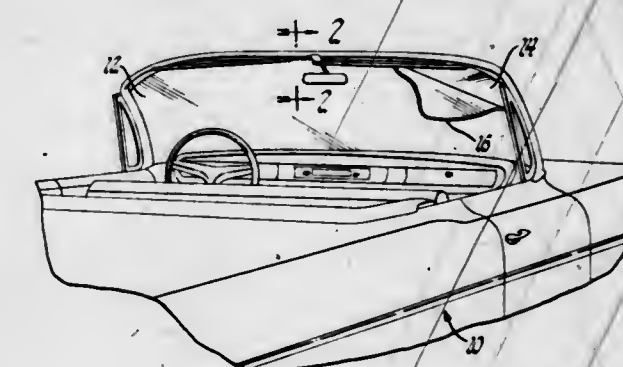
Lawrence L. Fleck, Warren, Mich., assignor to General Motors Corporation, Detroit, Mich.

Filed Sept. 15, 1967, Ser. No. 667,982

Int. Cl. B32b 17/10

U.S. Cl. 161-203

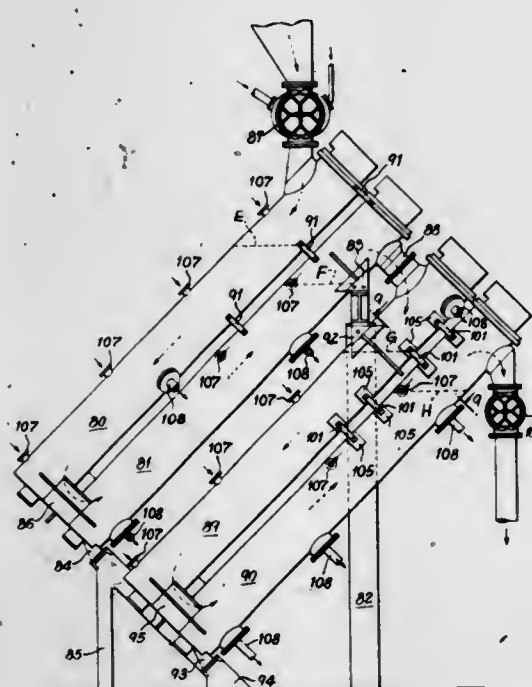
2 Claims



A window, lens or other optical device comprised of a transparent body member, such as glass, and a coextensive transparent polyvinyl alcohol based film, wherein

up to about 35% of the hydroxyl groups of the polyvinyl alcohol have reacted with another composition such that the film is substantially water-insoluble, applied to a surface of the transparent body member will retard the formation of frost or fog on the coated surface of the body member.

3,575,791
INCLINED CONTINUOUS DIGESTER WITH MECHANICAL CONVEYING SCREWS OF DECREASING PITCH
Hjalmar S. Messing, New York, N.Y., assignor to Mary Agnes Messing, Fort Fairfield, Maine
Filed May 1, 1967, Ser. No. 635,012
Int. Cl. D21c 7/00
U.S. Cl. 162—236 11 Claims

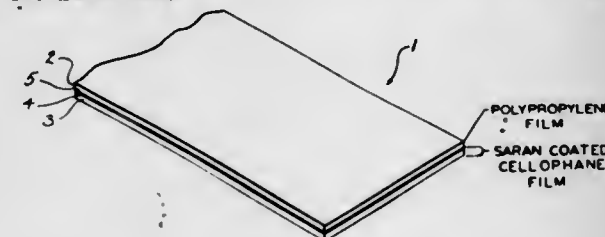


A continuous digester unit comprising parallel spaced inclined tubes positioned one above the other with the lower end portions connected, and the tubes enclosing corresponding conveyor screws constructed to reduce the volume of the material as it moves within the tubes and absorbs liquor for obtaining maximum capacity and smooth flow within a minimum area of floor space. The conveyor screws include spiral flights having a constant uniform outer diameter and a decreasing pitch in the direction of travel of material. The tubes are pivotally supported in their inclined position to permit positioning of the tubes in a horizontal direction when desired.

3,575,792
ADHESION OF CORD FABRIC TO VULCANIZED ELASTOMERS
Harald Blumel and Gerhard Berg, Marl, Germany, assignors to Chemische Werke Hüls A.G., Marl, Germany
No Drawing. Filed Feb. 13, 1968, Ser. No. 704,999
Claims priority, application Germany, Feb. 14, 1967, C 41,501
Int. Cl. B32b 27/32, 27/04, 32/08
U.S. Cl. 161—241 10 Claims

The adhesion of cord webs to vulcanized elastomers of ethylene, at least one other α -monoolefin and at least one polyunsaturated unconjugated olefin by impregnation with resorcinol/formaldehyde latex mixtures is improved when from 0.01–10 parts by weight of poly(conjugated)diolfin, based on 100 parts by weight of said elastomers, is admixed with the elastomers.

3,575,793
LAMINATE OF POLYPROPYLENE, SARAN AND CELLOPHANE AND METHOD OF MAKING SAME
George C. Paisley, Millbrae, Calif., assignor to Milprint, Inc., Milwaukee, Wis.
Filed Sept. 19, 1968, Ser. No. 760,958
Int. Cl. B32b 27/32, 27/16, 27/08
U.S. Cl. 161—249 4 Claims

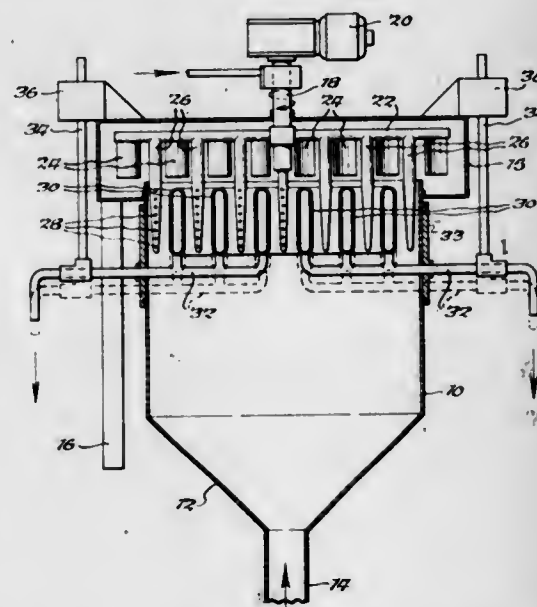


A packaging film including a layer of biaxially oriented polypropylene film and a layer of cellophane having a saran coating on at least one of its surfaces in which two films are joined to each other without the use of any adhesive primer, anchoring coating, etc. between the contacting surfaces. The film has a corona discharge treated uncoated surface of the polypropylene joined directly to the saran coating of the cellophane to thereby form the interfacial contact zone between the two films.

3,575,794
STERILE WATER REPELLENT LAMINATED SHEET MATERIAL
Thomas H. Shelley, East Brunswick, and George A. Crowe, Jr., Plainfield, N.J., assignors to Johnson & Johnson
No Drawing. Filed Mar. 8, 1966, Ser. No. 532,598
Int. Cl. B32b 27/10 3 Claims

A sterile water repellent fibrous laminated sheet material for surgical drapes and the like is disclosed. The adhesive used to bond the sheets together has a saline extraction surface tension greater than 55 dynes/cm. and the finished sheet has a saline repellency of greater than 24 hours.

3,575,795
RAPID HIGH CONSISTENCY BLEACHING WITH CONTINUOUS DIFFUSION
Amiel W. Brinkley, Jr., George G. Nelson, Jr., R. Terry Campbell, and Owen M. Goff, Mobile, Ala., assignors to International Paper Company, New York, N.Y.
Continuation-in-part of application Ser. No. 583,349, Sept. 30, 1966. This application Aug. 14, 1967, Ser. No. 663,920
Int. Cl. D21c 3/26 2 Claims



A method of rapid bleaching of cellulosic material, such as wood pulp, is provided wherein a high consistency

liquid suspension of cellulosic material is introduced into a vessel, a bleaching solution is introduced into said liquid suspension through a plurality of inlet ducts, moved rapidly relative to the cellulosic material, and the suspension liquid extracted through a plurality of extraction screens.

3,575,796
PAPER SIZING WITH AZIRIDINES
Gerald H. Brown, Lebanon, and Martin M. Skoultschi, Somerset, N.J., assignors to National Starch and Chemical Corporation, New York, N.Y.
No Drawing. Filed Dec. 7, 1967, Ser. No. 688,683
Int. Cl. D21d 3/00 14 Claims

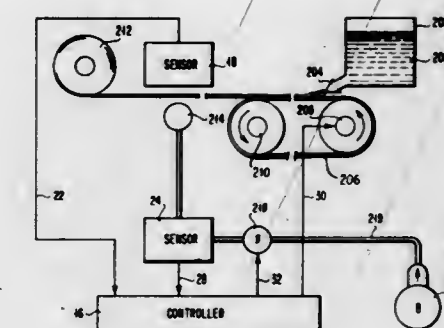
Sizing of paper and paperboard products which comprises intimately dispersing, within the aqueous pulp slurry, or applying to a prepared paper web, an aqueous emulsion of a N-substituted aziridine compound which is prepared by means of the reaction between a carbonyl-substituted, alpha, beta-ethylenically unsaturated compound such as distearyl maleate and an alkylenimine such as ethyleneimine. The sizing agent can be uniformly dispersed with a cationic emulsifier, such as a cationic starch, for better retention on the fibers.

3,575,797
METHOD OF RECOVERING FIBERS AND FILLERS FROM WASTE WATER OF PAPER MACHINES WHEREIN USE IS MADE OF AN ETHER REACTION PRODUCT COMPRISING A POLYAMINE AND A DERIVATIVE OF A POLYOL HAVING AT LEAST TWO CHLOROFORMIC ACID ESTER GROUPS
Wolfgang Lehmann, Leverkusen, Heinz Ziemann, Leichlingen, and Hermann Tretter, Leverkusen, Germany, assignors to Farbenfabriken Bayer Aktiengesellschaft, Leverkusen, Germany
No Drawing. Filed Apr. 25, 1967, Ser. No. 633,383
Claims priority, application Germany, Apr. 30, 1966, F 49,081
Int. Cl. D21f 1/66 7 Claims

A flotation agent and method for recovering fibers or fillers from waste water by admixing a flotation agent consisting essentially of the amino groups and ether groups-containing product of a molecular weight of at least 2000 obtained by reacting a polyfunctional derivative of a polyol with an amine, which is at least bifunctional with regard to the polyfunctional derivative of the polyol, at least one of the reaction components containing at least one ether group, or a quaternization product thereof; agitating and separating the resulting froth from the waste water.

3,575,798
PROCESS FOR MAINTAINING STEAM DRYER PRESSURE BELOW THE MAXIMUM AVAILABLE
Erik B. Dahlin, Saratoga, Calif., assignor to International Business Machines Corporation, Armonk, N.Y.
Filed July 3, 1968, Ser. No. 742,318
Int. Cl. D21f 5/02 3 Claims

A method of controlling a physical process, like a paper making machine, is disclosed. The process has at least two variables. The first variable in the process is frequently adjusted. The second variable is less frequently adjusted. The second variable is relatively stable. Setting the relatively stable variable establishes an operating range for the first variable. The measurable production from the physical process is thereby improved and/or increased. In a paper making machine, machine speed is adjusted infrequently in response to the moisture content of paper after a dryer section, to establish an operating

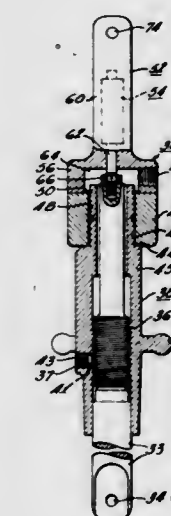


range for dryer steam pressure which is below the maximum available steam pressure, the dryer steam pressure

then being adjusted within the range to correct for moisture variations.

ERRATUM
For Class 162—236 see:
Patent No. 3,575,791

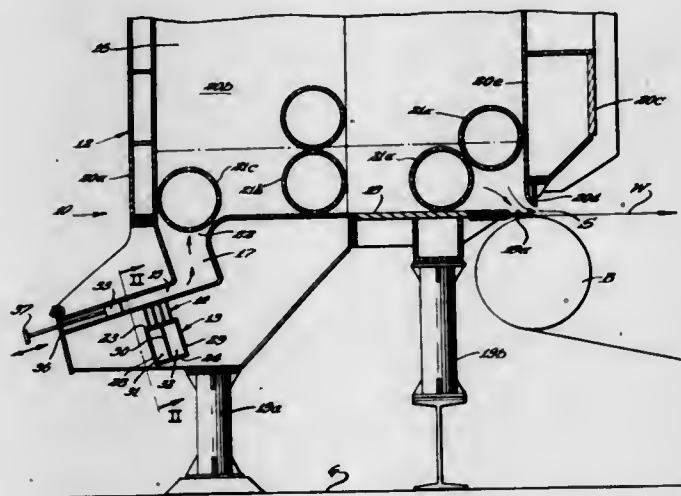
3,575,799
APPARATUS FOR ADJUSTING THE SLICE OPENING OF A PAPERMAKING MACHINE HEADBOX
Fred J. Gedemer and James F. Lux, Appleton, Wis., assignors to Allis-Chalmers Manufacturing Company, Milwaukee, Wis.
Filed July 15, 1968, Ser. No. 744,996
Int. Cl. D21f 1/02 7 Claims



A device for adjusting the slice opening of a paper-making machine headbox, comprising a turnbuckle assembly including a threaded adjusting rod secured to the upper lip of the slice opening and a turnbuckle sleeve member threadably engaging the adjusting rod which is rotated to vertically move the adjusting rod to impart an adjusting movement to the upper lip of the slice opening. The turnbuckle sleeve is supported by a support member upon which is connected a housing having a neck portion extending in the direction opposite the support member, and which is connected to the headbox. A dial gauge micrometer is positioned within the housing, and a projecting stem from the micrometer engages the end of the adjusting rod opposite the end connected to the slice lip to visually indicated the degree of adjusting movement imparted to the slice lip resulting from turnbuckle sleeve rotation.

3,575,800
MULTIPLE GALLONAGE HEADER FOR PAPER MACHINE HEADBOX
 Ralph A. Beck, Beloit, Wis., assignor to Beloit Corporation
 Filed Nov. 13, 1968, Ser. No. 775,302
 Int. Cl. D21f 1/02
 U.S. Cl. 162—338

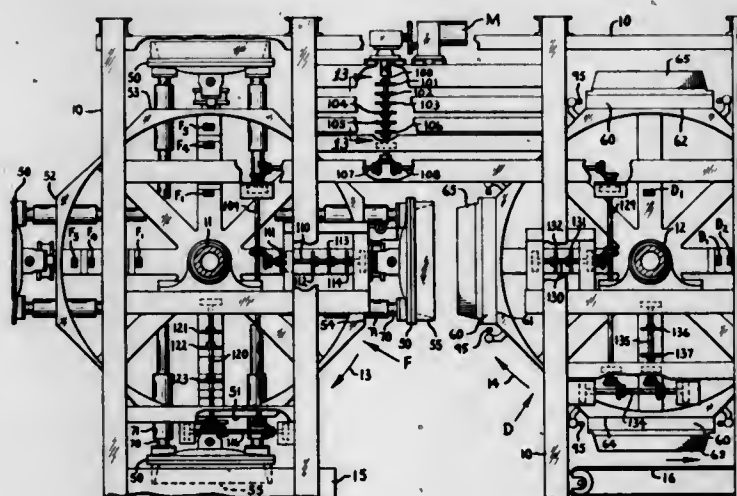
8 Claims



A stock supply and distribution system for the headbox or stock inlet box of a papermaking machine including a stock supply header which extends and which is internally compartmentalized across the width of the headbox, and plural groups of narrow risers which communicate respectively the various compartments of the stock supply header with the stock inlet box. A block valve is provided for selectively shutting off flow through any of the groups of risers thereby reducing the total stock flow rate while maintaining a substantially constant rate of flow through the opening flowing compartments and risers.

3,575,801
DUO DRUM MOLDING MACHINE
 Paul D. Friday, 4480 SW. Laurelwood Drive, Portland, Oreg. 97225
 Filed July 15, 1968, Ser. No. 744,964
 Int. Cl. D21j 3/00
 U.S. Cl. 162—389

13 Claims

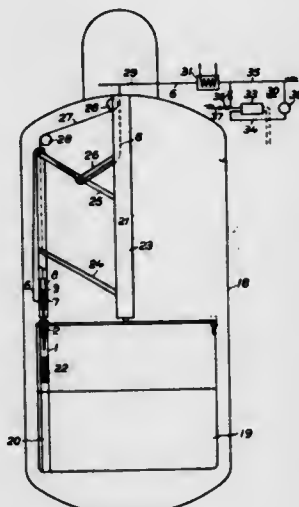


The machine comprises a forming drum and a drying drum, both rotatable in unison in 90° step-by-step move-

ment. Four sides of the forming drum are equipped with forming dies and four sides of the drying drum are equipped with heated drying dies. The forming dies are mounted for radial reciprocation. At a pick-up station the forming dies are projected downward into a furnish tank beneath the forming drum and then retracted. During three-quarters of a revolution the forming dies are under suction to remove water from the pre-forms. Then, at a transfer station, the forming dies are projected horizontally to transfer the pre-forms to drying dies on the drying drum, and then retracted. After three-quarters of a revolution on the drying drum, the dried articles are blown off the drying dies to a conveyor belt at a discharge station beneath the drying drum.

3,575,802
NUCLEAR REACTOR HAVING A RUPTURE DETECTING SYSTEM
 Hendrik Gelius, Vasteras, Sweden, assignor to Allmanna Svenska Elektriska Aktiebolaget, Vasteras, Sweden
 Continuation-in-part of application Ser. No. 499,405, Oct. 21, 1965. This application Mar. 13, 1968, Ser. No. 712,692
 Claims priority, application Sweden, Dec. 16, 1964, 15,195/64
 Int. Cl. G21c 17/04
 U.S. Cl. 176—19

6 Claims



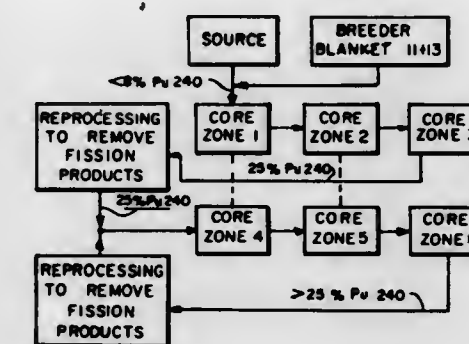
A device for detecting faults in a nuclear reactor by analyzing samples of the reactor cooling medium has a movable sampling member situated inside the reactor vessel and connectible to the fuel elements one by one and a sampling conduit connected between the sampling member and a monitoring system situated outside the reactor vessel.

3,575,803
REACTOR FUELING METHOD
 Paul Greebler, San Jose, Calif., assignor to the United States of America as represented by the United States Atomic Energy Commission
 Filed Aug. 8, 1968, Ser. No. 751,100
 Int. Cl. G21c 19/20
 U.S. Cl. 176—30

8 Claims

A refueling method for a fast neutron sodium-cooled nuclear breeder reactor system which involves positioning fuel elements containing fissile fuel having a Pu-240 isotope content greater than 25% adjacent the breeder blanket at the core periphery and placing fuel elements having a Pu-240 isotope content less than 8% near the

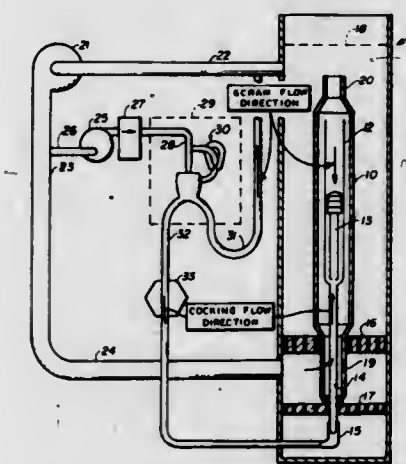
central region of the core. The result is a lowering of the positive coolant void reactivity in the central region. New drive units in continuous operation. Speed adjustments of one motor unit causes control rod movement for purpose of reactor control. Braking of said motor unit provides



fuel placed near the center core region is shuffled to the core periphery in an organized manner.

3,575,804
ELECTROMAGNETIC FLUID VALVE
 Charles C. Ripley, San Jose, Calif., assignor to the United States of America as represented by the United States Atomic Energy Commission
 Filed July 24, 1968, Ser. No. 747,160
 The portion of the term of the patent subsequent to Dec. 30, 1986, has been disclaimed
 Int. Cl. F15c 1/04, 4/00
 U.S. Cl. 176—36

5 Claims

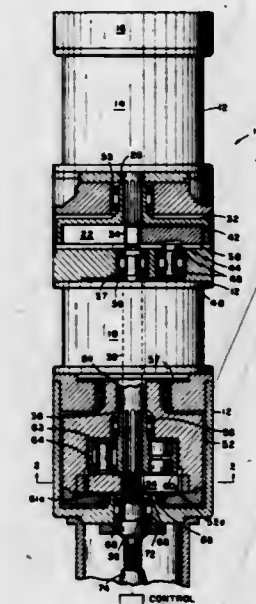


A hydraulically actuated control rod drive system for a nuclear reactor. The system utilizes an electrically conductive fluid and comprises basically electromagnetic fluid valve means having an input, two outputs and a continuous flowing primary fluid including control signal means using an electrically conductive secondary fluid for switching the primary fluid from one output to the other and flow control means including an electromagnetic induction throttle for controlling the flow of the secondary fluid in said control signal means.

3,575,805
NUCLEAR REACTOR CONTROL ROD DRIVE ASSEMBLY
 John D. Dempsey, Lynchburg, Va., assignor to the United States of America as represented by the United States Atomic Energy Commission
 Filed Dec. 18, 1968, Ser. No. 784,679
 Int. Cl. F16h 37/06; G21c 7/08
 U.S. Cl. 176—36

3 Claims

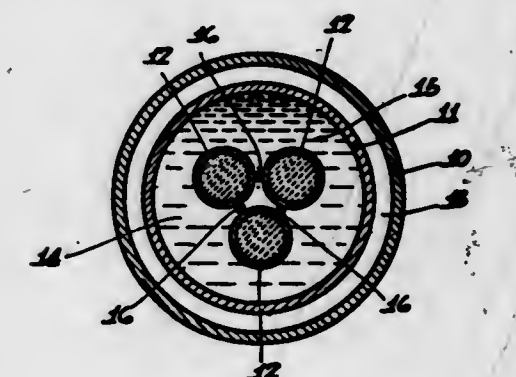
A control rod drive assembly for a nuclear reactor utilizing a planetary gear system and a pair of motor



rapid rod insertion while a flywheel built into the planetary gear system provides rapid rod insertion in the event both motor units fail.

3,575,806
HYDRIDING RESISTANT ZIRCONIUM ALLOY COMPONENTS
 John Boulton, Pinawa, Manitoba, Canada, assignor to Atomic Energy of Canada Limited, Ottawa, Ontario, Canada
 Filed Nov. 24, 1967, Ser. No. 685,534
 Int. Cl. G21c 15/00, 19/28
 U.S. Cl. 176—50

3 Claims



Nuclear reactor components in an organic coolant circuit formed from a zirconium alloy containing 0.1 to 0.3% Sn, 0.05 to 0.2% Fe, 0.05 to 0.2% Ni, 0.05 to 0.2% Nb by weight with the remainder zirconium, which alloy exhibits a high resistance to hydriding when exposed to a hydriding atmosphere such as provided by organic coolant.

3,575,807
STEAM COOLED REACTOR OPERATION
 Charles C. Ripley, San Jose, Calif., assignor to General Electric Company
 Filed Jan. 29, 1968, Ser. No. 701,229
 Int. Cl. G21c 15/24
 U.S. Cl. 176—56

9 Claims

A steam circulating system for a steam cooled nuclear reactor is disclosed. This system includes a start-up technique in which a steam thermopresser acts first as a con-

apparatus embodies a compact design and affords positive inventory control without need for liquid level instrumentation.

3,575,816

NOVEL PROCESS FOR RECOVERY OF 2-METHYL-5-VINYLPYRIDINE FROM MIXTURES WITH 2-METHYL-5-ETHYLPYRIDINE

Gerhart Schreiner, Visp, Valais, Switzerland, assignor to Lonza Ltd., Basel, Switzerland

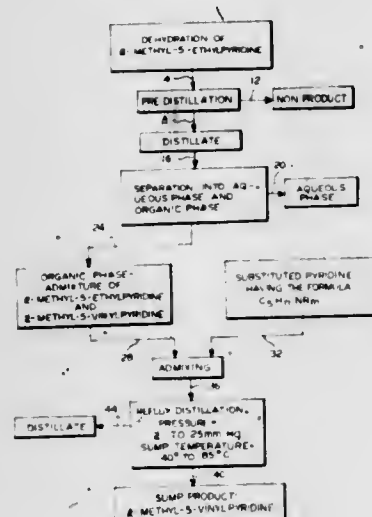
Filed Nov. 14, 1968, Ser. No. 775,898

Claims priority, application Switzerland, Nov. 17, 1967, 16,162/67

Int. Cl. B01d 3/34; C07d 29/00

U.S. Cl. 203—8

7 Claims



A process for recovering 2-methyl-5-vinylpyridine from mixtures containing 2-methyl-5-vinylpyridine and 2-methyl-5-ethylpyridine comprises vacuum distillation of mixtures containing the above compounds in the presence of a pyridine corresponding to the formula $C_5H_nNR_m$ where n is 3 or 4, m one or 2 and R is methyl or ethyl.

3,575,817

MULTIEFFECT DISTILLATION PROCESS AND SYSTEM WITH DOWNWARD REMOVAL OF VAPOR

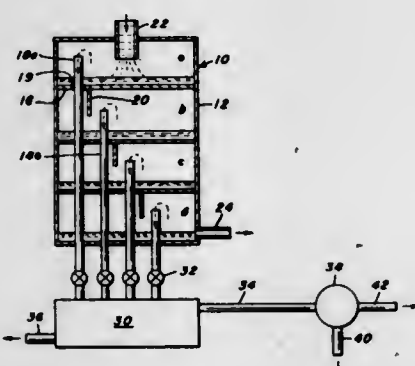
Melvin H. Brown, Leechburg, Pa., assignor to Aluminum Company of America, Pittsburgh, Pa.

Filed Mar. 7, 1969, Ser. No. 805,195

Int. Cl. B01d 3/10

U.S. Cl. 203—11

10 Claims



A portion of an impure liquid is evaporated and the vapor condensed to provide a purified liquid product such as purified water. Evaporation is effected by a process employing a plurality of evaporate zones. According to the new arrangements, evaporation is effected in a plurality of zones and the vapor removed downwardly through

elongate chambers. A downwardly decreasing thermal gradient is established in the unevaporated liquid by properly controlling the pressures in the evaporative zones. Heat is removed from the vapor as it is moved downwardly through this temperature gradient.

3,575,818

MANUFACTURE OF ABSOLUTE ETHANOL USING PENTANE AS AZEOTROPING AGENT

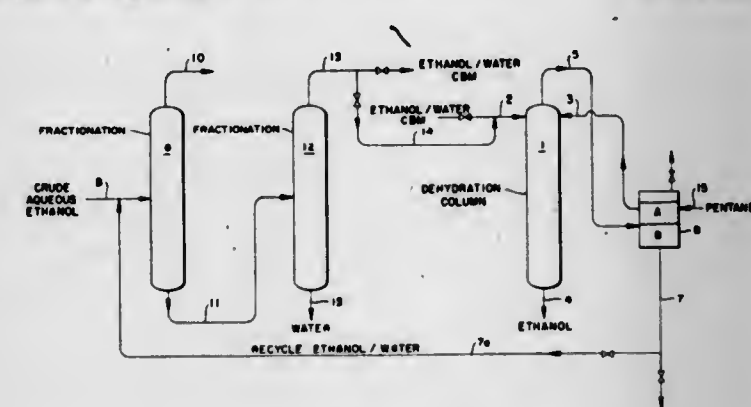
Frank B. West, Berkeley, Calif., assignor to Shell Oil Company, New York, N.Y.

Filed Feb. 3, 1969, Ser. No. 795,812

Int. Cl. C07c 29/26

U.S. Cl. 203—19

2 Claims



Ethanol-water mixtures are dehydrated by azeotropic distillation in the presence of pentane.

3,575,819

STEAM DISTILLATION OF POLYPHENYL THIOETHERS UNDER REDUCED PRESSURE WITH OR WITHOUT ALUMINA TREATMENT

Charles W. Ross, Belleville, and Dario R. Cova, Kirkwood, Mo., assignors to Monsanto Company, St. Louis, Mo.

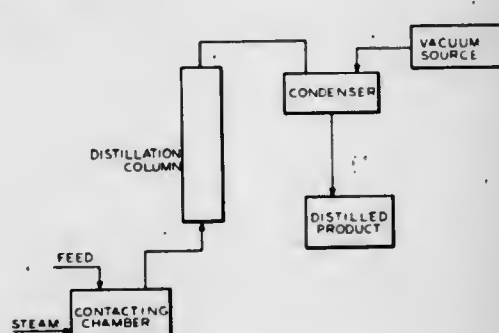
Original application June 21, 1960, Ser. No. 559,127.

Divided and this application Jan. 5, 1970, Ser. No. 581

Int. Cl. B01d 3/10; C07c 149/02

U.S. Cl. 203—29

6 Claims



The corrosiveness and oxidative stability of polyphenyl ethers, polyphenyl thioethers, phenoxy biphenyls and mixtures thereof is greatly improved by subjecting such compounds to a subatmospheric pressure distillation in the presence of steam.

3,575,820

PROCESS FOR SEPARATING ORTHO-ISOMERS FROM DIISOCYANATE MIXTURES BY DISTILLATION WITH ALUMINUM OXIDE

Wilhelm J. Schnabel, Branford, and Ehrenfried H. Kober, Hamden, Conn., assignors to Olin Corporation

No Drawing. Filed Nov. 22, 1968, Ser. No. 778,344

Int. Cl. B01d 3/34; C07c 69/00

U.S. Cl. 203—30

4 Claims

Removal of ortho-isomers from tolylene diisocyanate mixtures is effected by incorporating aluminum oxide with

said mixtures and subsequently distilling to recover non-vinyl tolylene diisocyanate. The aluminum oxide functions as a selective polymerization catalyst for the ortho-isomers, which polymerize to solid, non-distillable polymers.

3,575,821

ELECTROLYTIC RECORDING MEDIUM

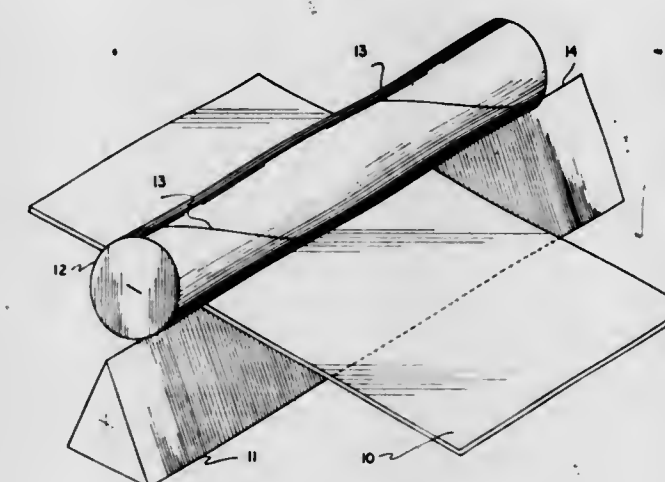
Arthur S. Diamond, Palos Verdes Peninsula, and James F. Komerska, Carson, Calif., assignors to Hogan Faximile Corporation, Los Angeles, Calif.

Filed July 5, 1968, Ser. No. 742,644

Int. Cl. B21h 1/20

U.S. Cl. 204—2

13 Claims



An electrolytic recording medium comprising a sheet of paper impregnated with 25 to 50% by weight of an electrolytically conducting solution containing a marking compound such as ascorbic acid, erythorbic acid or sodium sulfoxylate, and from 0.05 to 25% by weight of an N-alkylol amine-aldehyde addition product. Suitable addition products are methylolureas and hexamethylolmelamine.

3,575,822

METHOD OF MANUFACTURING MINIATURIZED ELECTRIC CIRCUITS

Pol Jean Limbourg, Lillois-Witterzeel, Belgium, assignor to U.S. Philips Corporation, New York, N.Y.

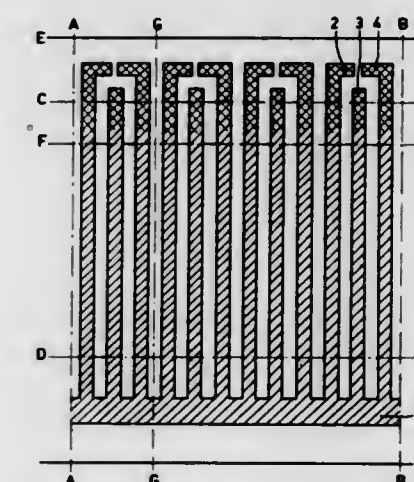
Filed June 20, 1967, Ser. No. 647,466

Claims priority, application Netherlands, June 23, 1966, 6608701

Int. Cl. B23p 17/00; B44d 1/18; C23b 5/48

U.S. Cl. 204—15

17 Claims



A method of mass producing miniaturized electrical circuits provided with supply conductors. A first con-

ductive layer is deposited on a plate carrier to form an electrode pattern; a second conductive layer is deposited over the carrier and electrode pattern and etched to form a supply conductor pattern, subsequently the conductor pattern is reinforced electrolytically and then the carrier is separated from these portions of second layer thus forming the supply conductors.

3,575,823

METHOD OF MAKING A SILICON TARGET FOR IMAGE STORAGE TUBE

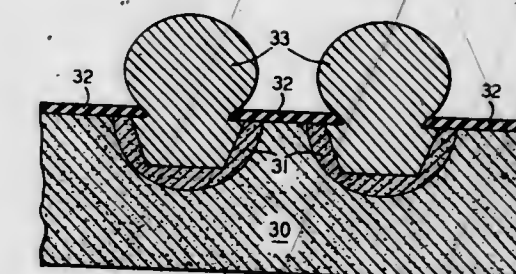
Eugene I. Gordon, Convent Station, N.J., assignor to Bell Telephone Laboratories, Incorporated, Murray Hill and Berkeley Heights, N.J.

Filed July 26, 1968, Ser. No. 747,866

Int. Cl. B44d 1/18; C23b 5/48

U.S. Cl. 204—15

1 Claim



The specification describes a technique for improving the diode-array image storage tube described in application Ser. No. 605,715 and now Pat. No. 3,403,284. Conductive islands are deposited over each diode to minimize adverse charge storage effects on the insulator isolating the diodes. Precise registration of the island on the diode regions is obtained by selective preferential deposition on the relatively conductive diode regions. This can be done by electroplating or electroless plating.

3,575,824

METHOD OF MAKING A THIN MAGNETIC FILM STORAGE DEVICE

John E. Eide, Syracuse, N.Y., assignor to General Electric Company

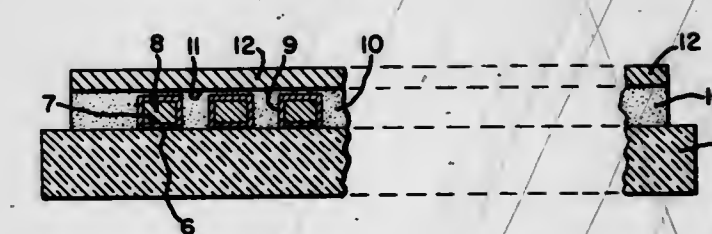
Original application Nov. 12, 1965, Ser. No. 507,357.

Divided and this application Dec. 23, 1968, Ser. No. 804,034

Int. Cl. C23b 5/48; G11b 5/00; B41m 3/08

U.S. Cl. 204—15

3 Claims



The invention relates to a method of fabricating thin magnetic film storage devices and more specifically to the making of thin magnetic film storage devices in a matrix structure wherein each storage element has a closed flux path.

A first plurality of parallel conductors is formed by depositing a conducting layer upon a layer of magnetic film earlier deposited on a base plate and the two are etched

into parallel strips. This is followed by the electrodeposition of a magnetic film about these conductors to form a closed magnetic flux path about the individual strips.

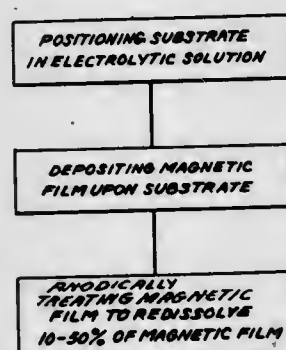
After laying down an insulating layer, a second plurality of parallel conductors is arranged over the first plurality of conductors and orthogonal thereto.

3,575,825 METHOD OF INCREASING THE COERCIVE FORCE OF COBALT-TUNGSTEN FILMS BY ANODIC TREATMENT

Raymond E. Skoda, Schenectady, N.Y., assignor to General Electric Company
Filed Jan. 12, 1968, Ser. No. 697,349
Int. Cl. C23f 17/00

U.S. Cl. 204—35

5 Claims



The coercive force of a thin magnetic film of CoW is increased by approximately 100 oersteds for a given film thickness by positioning the magnetic film within the electrolytic solution employed to originally plate the film and anodically dissolving from 10-50% of the magnetic film into the solution.

3,575,826 METHOD AND COMPOSITION FOR ELECTROPLATING TIN

Kenneth P. Bellinger, Rockville, and Joseph F. Conoby, Somers, Conn., assignors to Conversion Chemical Corporation, Rockville, Conn.
No Drawing. Filed Oct. 16, 1968, Ser. No. 768,181
Int. Cl. C23b 5/14, 5/46

U.S. Cl. 204—54

21 Claims

An aqueous bath for electroplating tin upon metal surfaces contains stannous ion, sulfate radical, a surface-active sulfated polyoxyalkyl carbinamine and an imidazoline derivative. The bath has a hydrogen ion concentration of about 0.9 to 4.1 grams per liter, and it operates effectively over a wide range of current densities to produce desirable deposits at relatively high plating rates.

3,575,827 SYSTEM FOR REDUCTION OF ALUMINUM

Arthur F. Johnson, 203 Creole Lane, Franklin Lakes, N.J. 07417

Continuation-in-part of applications Ser. No. 528,503, Feb. 18, 1966, now Patent No. 3,434,957, Ser. No. 550,653, May 17, 1966, now Patent No. 3,501,386, Ser. No. 607,330, Jan. 4, 1967, now Patent No. 3,434,958, and Ser. No. 614,294, Feb. 6, 1967, now Patent No. 3,470,075. This application Dec. 6, 1967, Ser. No. 688,578

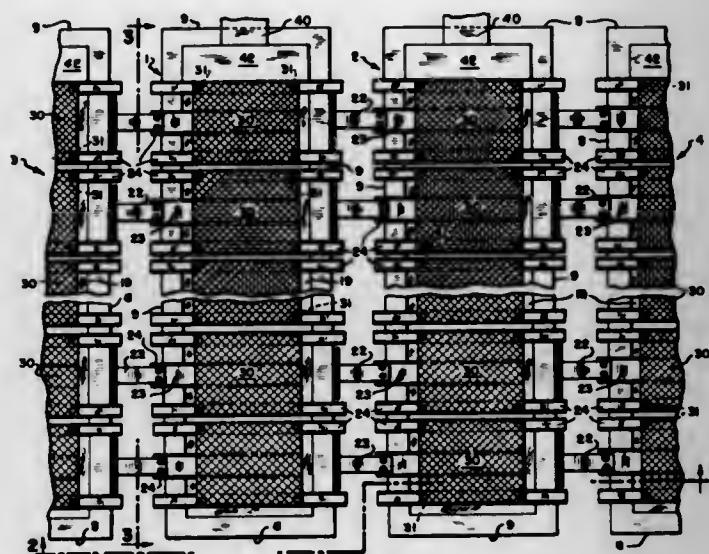
Int. Cl. C22d 3/12, 3/02; B01k 3/00

U.S. Cl. 204—67

16 Claims

A system for electrolytic reduction of aluminum, the system including a plurality of adjacent cells for effecting the electrolytic reduction of aluminum in which the cells are connected in line and each cell includes a cathode and

a plurality of anodes with the cathode of one cell electrically connected to each anode of the next adjacent cell



for directing the entire current from the cathode of the one cell to each anode of the adjacent cell.

3,575,828 METHOD OF INSOLUBILIZING GELATIN

Harvey A. Hodes, James F. Sobieski, and Michael C. Zerner, Eatontown, N.J., assignors to the United States of America as represented by the Secretary of the Army
No Drawing. Filed Mar. 1, 1968, Ser. No. 709,827
Int. Cl. B01k 1/00

U.S. Cl. 204—131

1 Claim

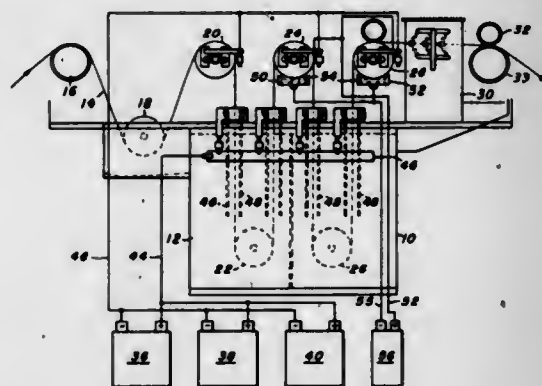
An aqueous electrically conductive gelatin-containing solution is coated onto a first electrically conductive support or anode. The solution is allowed to gel and set. Then, a second electrically conductive support or cathode is brought into contact with the gel to form a sandwich. Passing a current through the gelatin-containing layer causes the gelatin to insolubilize on the first electrically conductive support; the degree of insolubilization being proportional to the amount of current passed.

3,575,829 SYSTEM FOR CLEANING CONTACT ROLLS IN A PLATING TANK

Robert A. Germann, North Madison, Ohio, and James B. Murtland, Jr., Natrona Heights, Pa., assignors to Allegheny Ludlum Steel Corporation, Brackenridge, Pa.
Filed Aug. 14, 1968, Ser. No. 752,521
Int. Cl. C23b 1/00, 3/02

U.S. Cl. 204—141

3 Claims



Described is a system for preventing the build-up of a coating on contact rolls over which strip material passes in an electrolytic coating process. This is accomplished by a process of de-plating wherein the coating is removed electrolytically from the contact rolls by a reverse current and deposited in an easily cleaned pan.

3,575,830 BETA-CHLORINATION OF ALPHA HYDROXY-ISO-BUTYRIC ACID

Richard W. Hein, Ridgefield, and Herman A. Bruson, Woodbridge, Conn., assignors to Escambia Chemical Corporation, Pace, Fla.
No Drawing. Filed July 5, 1968, Ser. No. 742,534
Int. Cl. B01j 1/10

U.S. Cl. 204—158

6 Claims

A process for the beta-chlorination of α -hydroxyisobutyric acid by treating it with chlorine gas in the presence of light.

3,575,831 PROCESS FOR THE PRODUCTION OF VITAMIN D

Karlheinz Pfoertner, Basel, Switzerland, assignor to Hoffmann-La Roche Inc., Nutley, N.J.
No Drawing. Filed May 22, 1968, Ser. No. 731,262
Claims priority, application Switzerland, May 31, 1967, 7,703/67
Int. Cl. B01j 1/10; C07g 13/00

U.S. Cl. 204—159

16 Claims

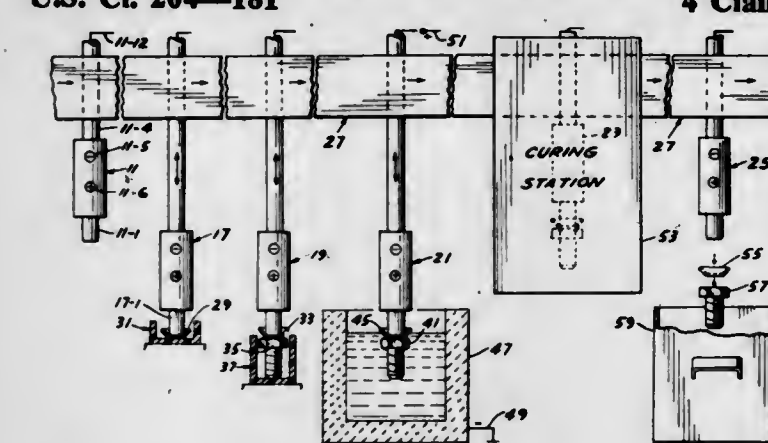
A process for converting provitamin D into vitamin D by irradiation with ultraviolet light of the wave length of 253.7 m μ . at temperatures of at least 50° C.

3,575,832 METHOD FOR ELECTROCOATING SMALL OBJECTS

Olin B. Johnson, Livonia, Mich., assignor to Ford Motor Company, Dearborn, Mich.
Filed June 3, 1968, Ser. No. 733,916
Int. Cl. B01k 5/02; C23b 13/00

U.S. Cl. 204—181

4 Claims



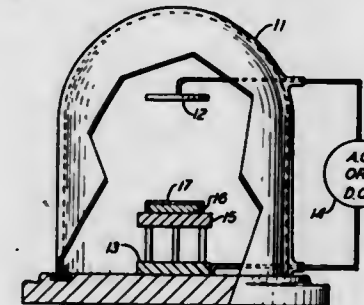
Method for electrodepositing paint upon small, ferromagnetic objects which includes supporting the workpiece throughout coating and curing with electromagnetic support means and impressing the coating voltage via the magnetic connection.

3,575,833 HAFNIUM NITRIDE FILM RESISTOR

Dieter Gerstenberg, Morristown, N.J., and Frank T. J. Smith, Bedford, Mass., assignors to Bell Telephone Laboratories, Incorporated, Murray Hill, N.J.
Filed Feb. 26, 1968, Ser. No. 708,159
Int. Cl. H01c 7/02

U.S. Cl. 204—192

2 Claims



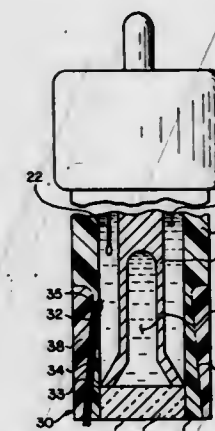
Hafnium nitride thin film resistors are obtained by sputtering hafnium in the presence of nitrogen maintained at partial pressures within the range of 10^{-4} - 10^{-2} torr.

3,575,834 LIQUID JUNCTION STRUCTURE FOR PLASTIC ELECTROCHEMICAL ELECTRODES

Duane W. Hoole, Huntington Beach, Gerald L. Klein, Orange, and Terry R. Vivian, Garden Grove, Calif., assignors to Beckman Instruments, Inc.
Filed Apr. 12, 1968, Ser. No. 720,802
Int. Cl. G01n 27/46

U.S. Cl. 204—195

4 Claims



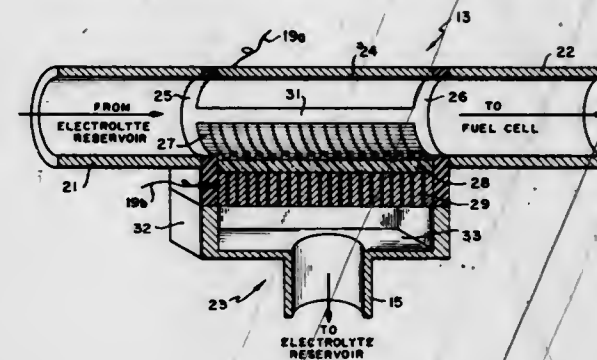
Liquid junction structures for plastic electrochemical electrodes and methods of manufacturing the same are disclosed. One embodiment comprises a tube of plastic having an open end with an ion sensitive structure mounted therein. A small longitudinal channel is formed in the tube which extends from the open end past the membrane to open into the interior of the tube. A bundle of fibers is positioned in the channel covered by a sleeve of injection molded plastic for compacting and restraining the fibers. The embodiment enables a planar sensing surface for a plastic combination electrode. Another embodiment comprises a tube having an extended lip portion surrounding an opening and a shrink tube surrounding the lip portion. A bundle of fibers is positioned in the opening; thereafter the lip portion and the shrink tube are heated to melt and contract the lip portion and the shrink tube respectively about the fibers.

3,575,835 HYDRAZINE SENSOR

Robert E. Smith and Herman B. Urbach, Annapolis, Md., assignors to the United States of America as represented by the Secretary of the Navy
Filed Oct. 28, 1968, Ser. No. 771,086
Int. Cl. G01n 27/46

U.S. Cl. 204—195

7 Claims



A sensing cell for determining the fuel content of an electrolyte for a fuel cell, which is constructed to be mounted as a section in the feed conduit of the fuel cell. It is constructed with the cathode as a portion of one wall

of the conduit and with a larger-pore membrane as another part of the conduit wall. Mounted outside the conduit and adjacent the membrane is a porous anode which is enclosed in a chamber having attached thereto a return conduit to carry the electrolyte which passes through the membrane and the anode back to the electrolyte reservoir. The chamber is not filled with fluid but provides a space to receive the gas generated in the sensor cell, which gas then passes out through the run-off pipe. The system may be open or closed depending upon the specific application.

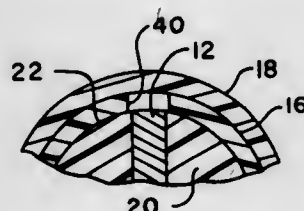
3,575,836

POLAROGRAPHIC SENSOR

James C. Sternberg, Fullerton, Calif., assignor to Beckman Instruments, Inc.
Filed Feb. 14, 1969, Ser. No. 799,335
Int. Cl. G01n 27/46

U.S. Cl. 204—195

13 Claims



A polarographic sensor comprising a pair of electrodes joined by an electrolyte with inner and outer membranes separating the electrode and electrolyte from the sample medium. The outer membrane is permeable to the gas being determined and impermeable to electrolyte while the inner membrane has an opening therein which overlies the sensing electrode of the sensor. This inner membrane is substantially less permeable to the gas being analyzed than the outer membrane and is hydrophilic so as to retain a film of electrolyte between the outer membrane and the electrodes. Preferably the outer membrane is formed of polytetrafluoroethylene and the inner membrane of polyethylene terephthalate (Mylar).

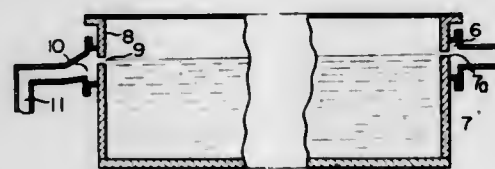
3,575,837

MERCURY-PROCESS ELECTROLYTIC CELL

Hiroshi Shibata, Teruo Imal, Shigeji Kumaki, and Yoshimitsu Sukegawa, Iwaki-shi, Japan, assignors to Kureha Kagaku Kogyo Kabushiki Kaisha, Tokyo-to, Japan
Filed Apr. 8, 1968, Ser. No. 719,367
Claims priority, application Japan, Apr. 19, 1967, 42/24,560; Dec. 13, 1967 42/79,857
Int. Cl. C01d 1/08

U.S. Cl. 204—220

3 Claims



Most of the return brine in a mercury-cathode cell is caused to overflow, together with liberated chlorine, from the surface of the electrolyte out of the cell, while a part of the brine is discharged, together with the mercury, out of the cell through the mercury outlet thereby to facilitate removal of contaminants and simplify apparatus organization.

3,575,838
ELECTROPHORETIC DEPOSITION OF CERAMIC COATINGS

Ernest W. Hughes, Lakewood, Ohio, assignor to Ferro Corporation, Cleveland, Ohio

No Drawing. Filed Dec. 12, 1968, Ser. No. 783,418
Int. Cl. B01k 5/00; C23b 13/00

U.S. Cl. 204—181

20 Claims

In the method of electrophoretically depositing a ceramic coating from a supply of slip thereof, the improvement step of incorporating in the tank batch, a combination of an alkali aluminate, and an alkali salt selected from the group consisting of alkali silicates, alkali zirconates and alkali titanates.

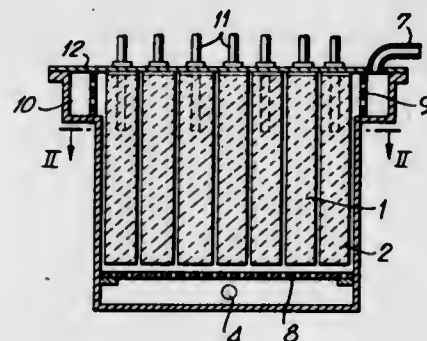
3,575,839

ELECTROLYZER WITH SOLID ELECTRODES

Mikhail Alexeevich Melnikov-Elkhenvald, Ul. Vavilova 10, korp. 20, kv. 18; Georgy Mikhaylovich Kamarian, Vorontsovskaya ul. 30b, kv. 18; Alexandr Kuzmich Nesterkin, Sovetskaya ul. 5, kv. 22; Vladimir Nikolae-vich Suchkov, Ul. Maril Ulyanivoi 16, korp. 1, kv. 53; Vadim Ippolitovich Djumulen, Ul. Petra Romanova 5, kv. 8; Andrei Petrovich Tomilov, 5 Parkovaya ul. 56, korp. 6, kv. 59; and Semen Lvovich Varshavsky, 7 ul. Pavla Andreeva 28, kv. 282, all of Moscow, U.S.S.R.
Filed Feb. 15, 1968, Ser. No. 705,677
Int. Cl. B01k 3/00, 3/04

U.S. Cl. 204—272

4 Claims



An electrolyzer is disclosed for the forced flow of an electrolyte therethrough and the electrolyzer comprises a unitary block constituting one electrode and having openings therein, the electrodes of opposite polarity being inserted with clearance in the openings to form interelectrode gaps between the electrodes. An electrolyte is circulated from an inlet of the block to an outlet thereof and passes through the electrode gaps. Grids are provided between the electrodes and the inlet and outlet respectively to distribute the electrolyte in the interelectrode gaps. Partitions permeable to electrolyte are positioned in the interelectrode gaps and have lateral projections to agitate electrolyte during its flow through the interelectrode gaps. The block has passages for the flow of a heat exchange fluid therethrough and these passages are isolated from the openings.

3,575,840

ANODE CLAMPING SYSTEM AND ANODE CLAMPS

Joel M. Morris, East Norwalk, Conn., and Jacob Brayman, Staten Island, N.Y., assignors to Metallurgical Consultants, Inc., New York, N.Y.

Filed Aug. 19, 1968, Ser. No. 753,361
Int. Cl. C23b 5/70

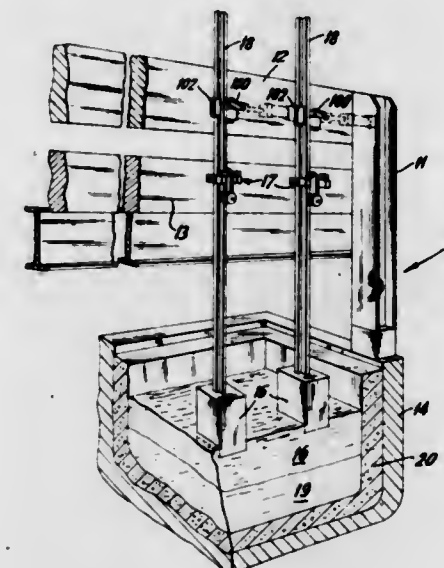
U.S. Cl. 204—297

32 Claims

An anode rod clamping system in which quickly actuable clamps and a fail-safe mechanism provide better clamping grasp of anode rods and quicker, firmer adjustability or replacement of ganged or individual anodes,

primarily for use in aluminum reduction. The major clamp is adapted for an adjustable bus bar with a secondary clamp on a stationary bar, to hold anode rods

chuit conduction is established through the deposits, causing the deposits to be forced from the electrodes and carried by the fluid to a settling tank for accumulation and removal from the system.



while the first clamp is released or adjusted. The system also provides better electrical contact of the anodes from the bus bar through the anode rods to the actual anode.

3,575,841

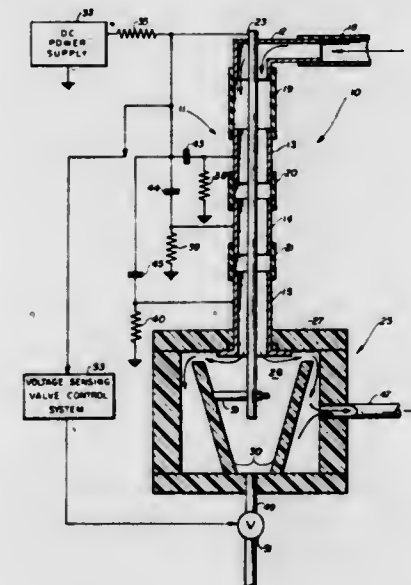
SYSTEM FOR REMOVING PARTICLES FROM A FLUID BY MEANS OF AN ELECTRIC FIELD

Clarence A. Harris, Los Altos, Calif., assignor to the United States of America as represented by the United States Atomic Energy Commission

Filed Sept. 25, 1968, Ser. No. 762,460
Int. Cl. B01d 13/02

U.S. Cl. 204—299

7 Claims



A system including a conduit comprised of several sections of electrically conductive pipe alternately connected with pipe of electrical insulation material, a common electrically conductive rod extending along the central axis of the conduit, and a DC power supply for setting up a high voltage non-linear field between the common rod as one electrode and each conductive section as another electrode, whereby both ionized and neutral particles in a fluid flowing through the conduit are attracted to the electrodes and deposited thereon to the extent that short cir-

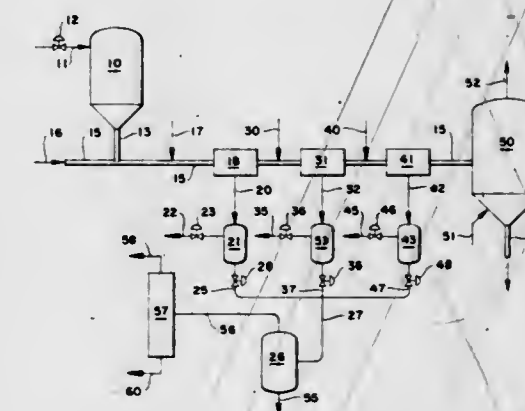
3,575,842

RECOVERING TAR FROM TAR SAND

Warren C. Simpson, Berkeley, Calif., assignor to Shell Oil Company, New York, N.Y.
Filed July 23, 1968, Ser. No. 746,791
Int. Cl. C10g 1/04

U.S. Cl. 208—11

6 Claims



Removing tar from tar sand by a continuous process which includes pneumatically passing a slurry of tar sand and solvent for the tar through a pipe as a series of slugs separated by slugs of a gas, withdrawing liquid from each slug of slurry as it passes through a series of filtration zones and introducing liquid into each slug of slurry as it passes through a series of washing zones, and recovering tar from the recovered liquid. Also disclosed is the tubular continuous extraction device which includes a tubular element having a series of alternate filtering and washing zones with means to regulate the pressure in the filtering zones to be successively diminishing in the direction of flow.

3,575,843

PRODUCTION OF FUEL OILS

Robert William Aitken, Edinburgh, Scotland, and Bernard Whiting Burbridge, Leatherhead, and Brian Edward Harold Pettyfer, Walton-on-Thames, England, assignors to The British Petroleum Company Limited, London, England

No Drawing. Filed Dec. 19, 1968, Ser. No. 785,381
Claims priority, application Great Britain, Jan. 11, 1968, 1,655/68

U.S. Cl. 208—28

Int. Cl. C10g 13/02, 13/10

7 Claims

Fuel oils or fuel oil components are produced from waxy atmospheric residues by vacuum distilling the residue to give a wax distillate fraction and a vacuum residue, selectively dewaxing the wax distillate fraction and reblending at least a portion of the dewaxed wax distillate fraction with at least a portion of the vacuum residue. The process is particularly suitable for atmospheric residues with 15–35% wt. wax. The preferred selective dewaxing process is catalytic, involving passing the wax distillate with hydrogen over a catalyst of a Group VIa and/or Group VIII hydrogenating component incorporated with mordenite of reduced alkali metal content. The mordenite is preferably decationised and has a SiO₂:Al₂O₃ ratio of at least 14:1. The dewaxing conditions may be 450–950° F., 250–3000 p.s.i.g., 0.2–20 v./v./hr. and 1000–3000 s.c.f. of H₂/B.

3,575,844

HYDROCRACKING PROCESS

Hans U. Schutt, Lafayette, Calif., assignor to Shell Oil Company, New York, N.Y.

No Drawing. Filed Mar. 10, 1969, Ser. No. 805,870

Int. Cl. C10g 17/02

U.S. Cl. 208—90

6 Claims

Catalyst poisons produced by hydrotreating of organic nitrogen-containing hydrocarbon oils, are removed by chemical treatment with acids or acid compounds resulting in substantial improvement in subsequent hydrocracking.

3,575,845

SELECTIVE CATALYTIC CONVERSION

Joseph N. Mile, Trenton, N.J., assignor to Mobil Oil Corporation

No Drawing. Continuation-in-part of abandoned application Ser. No. 143,067, Oct. 5, 1961. This application Dec. 13, 1965, Ser. No. 513,606

Int. Cl. C10g 13/02

U.S. Cl. 208—111

19 Claims

A chemical reaction is conducted selectively whereby a porous solid catalyst whose external exposed surface has been poisoned with an organic phosphorous compound is utilized such that only reactant molecules whose size and shape permit entry to the interior of the catalyst are converted.

3,575,846

CATALYSTS FOR THE SELECTIVE CONVERSION OF STRAIGHT-CHAIN HYDROCARBONS

Glen Porter Hamner, Baton Rouge, and Ralph Burgess Mason, Denham Springs, La., assignors to Esso Research and Engineering Company

No Drawing. Filed Sept. 14, 1967, Ser. No. 667,660

Int. Cl. C10g 13/02

U.S. Cl. 208—111

27 Claims

Improved catalysts for the selective conversion of straight-chain hydrocarbons contained in a hydrocarbon feed comprise a crystalline aluminosilicate zeolite of the erionite variety having a low potassium content. Preferably, the low-potassium erionite is combined with a metallic hydrogenation component and used in the selective conversion of low octane-producing normal paraffins to upgrade the hydrocarbon feedstock. The process is preferably conducted in the presence of added hydrogen at elevated temperatures and pressures.

3,575,847

USE OF SPHERICAL CATALYST IN COAL EXTRACT HYDROGENATION

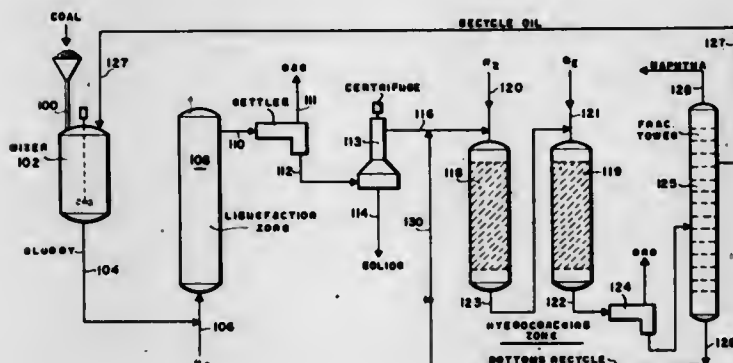
Frank B. Sprow, Baytown, Tex., and Grady W. Harris, Cambridge, Mass., assignors to Esso Research and Engineering Company

Filed Dec. 5, 1968, Ser. No. 781,475

Int. Cl. C10g 13/02

U.S. Cl. 208—112

7 Claims



Coal extracts containing suspended solids are hydro-treated in a fixed-bed downflow reactor. Bed plugging is minimized by using substantially spherical catalyst

granules having a minimum diameter at least ten times as great as the maximum dimensions of the suspended solids and maintaining a flow rate above the minimum at which occlusion of the bed results, preferably at least 1000 pounds per hour per square foot.

3,575,848

NATURAL MANGANESE OXIDE MINERALS AS HYDROCARBON CONVERSION CATALYSTS

Joseph N. Mile, Trenton, N.J., assignor to Mobil Oil Corporation

No Drawing. Filed Feb. 13, 1967, Ser. No. 615,375

Int. Cl. C10g 13/02

U.S. Cl. 208—112

5 Claims

Natural manganese oxide minerals are used as catalysts in hydrocarbon conversions, such as cracking.

3,575,849

BIOLOGICAL TREATMENT OF WASTEWATER

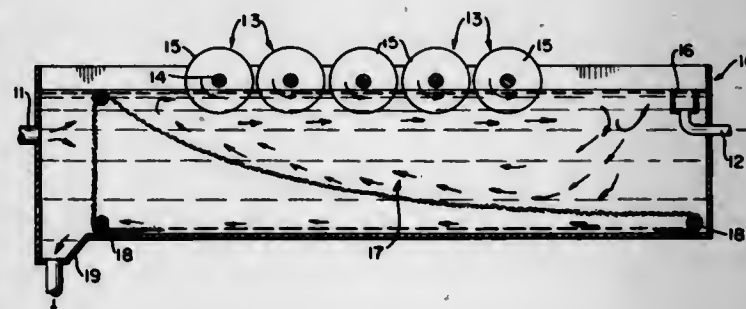
Wilbur N. Torpey, 4023 Hanford St., Douglaston, N.Y. 11363

Filed Dec. 5, 1968, Ser. No. 781,452

Int. Cl. C02c 1/10

U.S. Cl. 210—14

14 Claims



Method and apparatus for substantially upgrading the operating efficiency of wastewater treatment plants is disclosed. The invention utilizes forcibly rotating bodies that are partially submerged in the wastewater to provide surface area on which biological slimes develop and serve the purpose of removing pollutants from the wastewater. The rotating, partially submerged bodies are located in the upper portion of the treatment tanks, and, in addition to providing oxygen and nutrients for the growth and maintenance of biological slimes, serve to pump the wastewater to bring it in contact with the slimes. The treatment tank is thus divided into an upper biological treatment zone and a subjacent zone, through which solids are separated from the flow of wastewater and transported to a point of withdrawal from the system.

3,575,850

METHOD AND APPARATUS FOR TREATING WASTE MATERIALS

Roger Davidson, Arlington Heights, Ill., and Fumio F. Sako, San Jose, Warren G. Palmer, Saratoga, and Robert A. Fisher, Los Gatos, Calif., assignors to FMC Corporation

Filed July 7, 1969, Ser. No. 839,379

Int. Cl. C02c 1/12

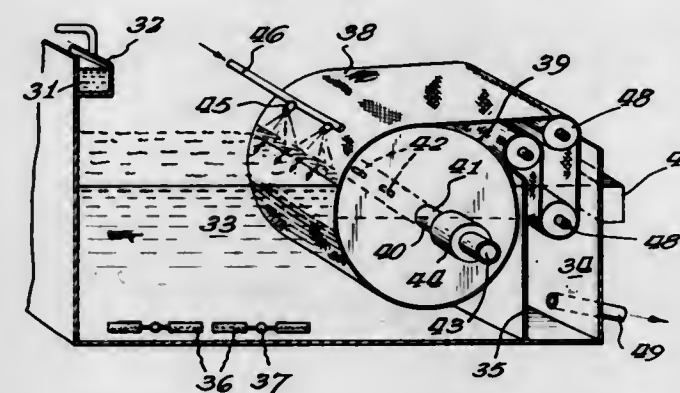
U.S. Cl. 210—15

11 Claims

The method of treating waste materials such as sewage involves introducing raw sewage into a body of aqueous medium, aerating said body of aqueous medium, withdrawing a sufficient volume of substantially solids free

liquid through a perforate drum supported filter which is partially submerged in said body of aqueous medium to compensate for the volume of influent waste material and thereby maintain a relatively constant volume for

and cation exchange material having a cation exchange capacity of at least about 20 milliequivalents per 100 grams of cation exchange material, thereby precipitating the soluble phosphates as insoluble phosphate salts.



said body of aqueous medium, accumulating solids on the movable filter operating so that it filters out solids while passing the substantially solids free liquid and transporting the solids accumulated on said screen to a point of disposal where the solids are dislodged from the screen.

3,575,851

PROCESS FOR SEPARATING ASH-FORMING COMPONENTS FROM SOOT

Pieter Visser, Amsterdam, and Godfried J. van den Berg, The Hague, Netherlands, assignors to Shell Oil Company, New York, N.Y.

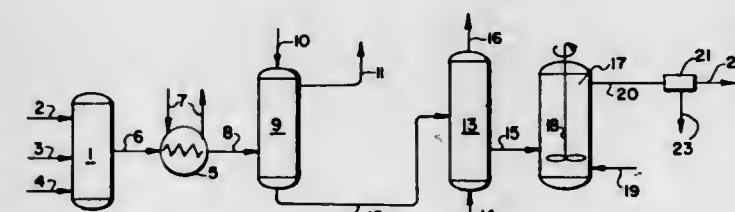
Filed Dec. 12, 1969, Ser. No. 884,398

Claims priority, application Netherlands, Dec. 24, 1968, 6818689

Int. Cl. B01d 11/02

U.S. Cl. 210—22

8 Claims



There is disclosed a process for the separation of ash-forming components from soot originating from a process for the gasification of a feed containing hydrocarbons or free carbon. An aqueous suspension of the soot is contacted with oxygen and then passed into contact with at least one auxiliary substance capable of taking up the soot particles in a zone where the liquid is kept moving in a turbulent manner. The contact with oxygen causes the auxiliary substance to reject ash-forming components to the aqueous phase.

3,575,852

METHOD FOR TREATING WASTE WATER CONTAINING DISSOLVED PHOSPHATES

John Hughes, Glenview, Ill., assignor to American Colloid Company, Skokie, Ill.

No Drawing. Filed June 6, 1969, Ser. No. 831,243

Int. Cl. C02b 1/16

U.S. Cl. 210—28

10 Claims

An inexpensive process for removing dissolved phosphates from waste water by precipitating same which includes adding to said waste water a mixture of lime

3,575,853

WASTE WATER TREATMENT

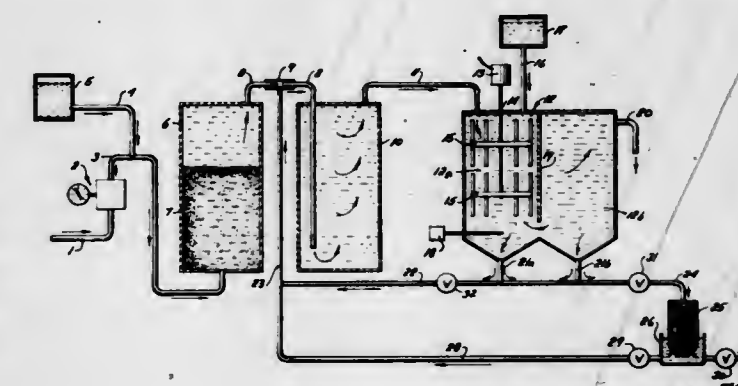
Philip J. Gaughan, Charles A. Noll, and James K. Brown, Philadelphia, Pa., assignors to Laboratories Betz, Inc., Trevose, Pa.

Filed Dec. 24, 1968, Ser. No. 786,572

Int. Cl. C02c 5/02

U.S. Cl. 210—46

13 Claims



The present disclosure relates to a process and an apparatus for affecting the process for the removal of various contaminants from waste waters and in particular, from industrial waste waters.

Water systems are conventionally treated with chromate, phosphate and zinc compounds either alone or in combination with each other and with biocides and the present invention provides for the removal of these materials from the water and any oil dispersed therein prior to its disposal. The water is first acidified, passed through a unit containing a bed of metal particles, passed into a mixing tank and then into a flocculating tank where the water is brought to an alkaline pH. Various insoluble precipitates are formed which are separated from the solution by deposition in a settling tank and by filtration.

3,575,854

RAPID SETTLING OF GELATINOUS PRECIPITATES

Raymond Richards, Detroit, Mich., assignor to M & T Chemicals Inc., New York, N.Y.

No Drawing. Filed Apr. 14, 1969, Ser. No. 816,055

Int. Cl. C02c 5/02

U.S. Cl. 210—50

8 Claims

A process is provided for the rapid settling of gelatinous, flocculent precipitates of hydrous heavy metal oxides from waste effluent streams by precipitating the metals present in the streams as hydroxides in the presence of a suspended, finely divided heavy solid settling agent which is insoluble in aqueous medium and which has a minimum specific gravity of 3.5, the weight ratio of the settling agent to metal content of the precipitate being a minimum of .7 to 1.0.

3,575,855

DRILLING FLUID SYSTEM

Jack C. Estes, Tulsa, Okla., assignor to Pan American Petroleum Corporation, Tulsa, Okla.

No Drawing. Filed May 1, 1968, Ser. No. 725,947

Int. Cl. C10m 3/34, 3/30

U.S. Cl. 252—8.5

10 Claims

Drilling muds containing anti-differential sticking agents which employ surface active agents as their principal active ingredient are often subject to excessive foaming. The

invention covered in this patent renders drilling muds highly resistant to foam formation by the addition of an alkylolamide to the anti-differential sticking agent. In addition to the surface active agent, the anti-differential sticking composition contains a water soluble phosphate, a glycol and a C₂ or C₃ alcohol, all dissolved in water.

3,575,856 FIBER LUBRICATING COMPOSITION AND METHOD

Anthony Anton, Wilmington, Del., assignor to E. I. du Pont de Nemours and Company, Wilmington, Del.
No Drawing. Filed July 6, 1967, Ser. No. 651,376
Int. Cl. D06m 13/26, 13/10

U.S. Cl. 252—8.9 3 Claims
An improved fiber lubricating composition containing coconut oil or an isocetyl ester of a 12 to 22 carbon atom fatty acid and a nonionic, surface-active condensate of ethylene oxide, the improvement of adding about 0.35% to 3.0% of potassium hydroxide to said lubricating composition.

3,575,857
FLUOROCARBON POLYMER COMPOSITION HAVING SELF-LUBRICATING CHARACTERISTICS
Clair Warren Graver, King of Prussia, Pa., assignor to Pennsalt Chemicals Corporation, Philadelphia, Pa.
No Drawing. Filed Sept. 18, 1968, Ser. No. 760,674
Int. Cl. C10m 5/00

U.S. Cl. 252—12 5 Claims
A moldable self-lubricating fluorocarbon polymer composition is comprised of from about 40 to about 70 wt. percent of vinylidene fluoride polymer, from about 2 to about 40 wt. percent of particulated glass filler and from about 15 to about 35 wt. percent of telomers of the structure R—(CF₂CF₂)_nX where R is perfluoroalkyl or monochloroperfluoroalkyl of one to four carbon atoms, X is chlorine, fluorine or iodine, and n is an integer from 6 to 16. The composition is thermally molded to form sleeve bearings, ball joint sockets, and other bearing shapes.

3,575,858
LUBRICATING COMPOSITION CONSISTING OF PERARYLATED SILANES AND SOLID LUBRICANT POWDERS
Attwell M. Adair and Leonard Spialter, Dayton, Ohio, assignors to the United States of America as represented by the Secretary of the Air Force
No Drawing. Filed May 20, 1969, Ser. No. 826,260
Int. Cl. C10m 3/44, 5/26

U.S. Cl. 252—26 8 Claims
High temperature lubricants comprising homogeneous mixtures of 10 to 90 percent by weight of perarylated silanes with 90 to 10 percent by weight of solid MoS₂, graphite, BN, aluminum powder, or low melting glass. The compositions disclosed herein have utility in meeting the elevated temperature lubrication requirements of the metalworking industry.

3,575,859
GELLING HYDROCARBON FLUIDS WITH COMBINATIONS OF ALUMINUM ALKYL ORTHOPHOSPHATES AND AMINES
Roger F. Monroe, Midland, Mich., assignor to The Dow Chemical Company
No Drawing. Filed Jan. 30, 1968, Ser. No. 701,568
Int. Cl. C10m 7/44, 7/30, 5/24

U.S. Cl. 252—32.5 8 Claims
Hydrocarbon liquids are gelled with small amounts of certain metal alkyl oleyl orthophosphates and amines in admixture.

3,575,860
GREASE COMPOSITION
Chi-Long Lee, George J. Quaal, and Ollie W. Marko, Midland, Mich., assignors to Dow Corning Corporation, Midland, Mich.
No Drawing. Filed Jan. 6, 1969, Ser. No. 789,662
Int. Cl. C10m 7/50

U.S. Cl. 252—49.6 11 Claims
A solid homopolymer of trifluoropropylphenyl siloxane units is added to a lubricating oil vehicle in an amount sufficient to thicken to a grease.

3,575,861 MINERAL OIL CONTAINING SURFACE ACTIVE AGENT

Richard J. Pratt, Flossmoor, Ill., assignor to Atlantic Richfield Company
No Drawing. Filed Jan. 29, 1969, Ser. No. 795,070
Int. Cl. C10m 1/32; C101 1/22

U.S. Cl. 252—51.5 20 Claims
The present invention provides oil-soluble, polymeric surface-active agents which are polyimide-amine salts of styrene-maleic anhydride copolymers having pendant tertiary amine groups containing a salt-forming tertiary nitrogen atom neutralized to the extent of at least about 75 percent with mono-carboxylic acids for instance having an aliphatic chain of at least about 8 carbon atoms. The salts of this invention exhibit the property of lowering the surface tension at oil-water interfaces. The polyimide-amine salts can also contain mixed imides resulting from the reaction of dialkylaminoalkylamines and monoalkyl amines or mixed imide-amides resulting from the reaction of dialkylaminoalkylamines and dialkylamines. This invention also provides oil compositions containing mineral oil and the oil-soluble, polymeric surface-active polyimide-amine salts, with or without water. These compositions are useful, for instance, as hydraulic fluids, jet fuels, electrolyte-containing oils, anti-wear lubricating oils, diesel fuels, and gasolines.

3,575,862
FERRITE CORE COMPOSITION AND METHOD
OF PREPARATION
Earl J. Hoopes, Philadelphia, Pa., assignor to Fabri-Tek Incorporated, Minneapolis, Minn.
No Drawing. Filed Mar. 18, 1969, Ser. No. 808,295
Int. Cl. C04b 35/26

U.S. Cl. 252—62.61 16 Claims
Ferrite cores, useful over a wide temperature range, consisting of about 0.14 to about 1.65 mole percent tungstic trioxide, about 1 to about 8 mole percent manganese oxide, about 11.35 to about 17.86 mole percent lithium oxide and about 75 to about 84 mole percent ferric oxide. These ferrite cores are magnetic material having a high squareness ratio therefore having a bi-stable magnetic property useful for storing information. A method of preparation is described wherein the core is sintered for a period which can be as short as about 10 to 25 minutes.

3,575,863 PHENOXYPHENOXYBIPHENYL COMPOUNDS AND COMPOSITIONS

William C. Hammann, Creve Coeur, and Robert M. Schisla, Kirkwood, Mo., assignors to Monsanto Company, St. Louis, Mo.
No Drawing. Application Apr. 28, 1967, Ser. No. 634,446, now Patent No. 3,471,574, which is a continuation-in-part of application Ser. No. 310,457, Sept. 20, 1963. Divided and this application Apr. 21, 1969, Ser. No. 832,531

Int. Cl. C09k 3/00, 3/02 2 Claims
U.S. Cl. 252—73
Compounds of classes represented by 3-(m-phenoxyphenoxy)biphenyl and 3-(p-phenoxyphenoxy)biphenyl

which exhibit liquid properties over a wide range and compositions containing said liquid compounds together with other fluids representative of which are polyphenyl ethers and phenoxybiphenyl compounds. The compounds and compositions have many uses among which are the use as a hydraulic fluid and heat transfer fluid.

3,575,864
STABILIZED PROTEASE OF BACTERIAL ORIGIN
AND METHOD OF STABILIZING SUCH PROTEASE
Irving Innerfield, 20 Knickerbocker Road,
Tenafly, N.J. 07670

No Drawing. Filed Apr. 17, 1969, Ser. No. 817,172
Int. Cl. C11d 7/42

U.S. Cl. 252—89 11 Claims
A protease of bacterial origin is stabilized against the loss of proteolytic activity in the presence of water by combining the protease with a less than stoichiometric quantity of an enzyme-ion binding agent to prolong the shelf life of the enzymic composition, and accompanying said combination with at least two members of the group consisting of salt, protein, organic solvent and detergent in a non-precipitating quantity.

3,575,865
BLEACHING COMPOSITIONS
Richard Lerda Burke, Madison, Leo Thomas Murray, East Brunswick, and William Chirash, New Providence, N.J., assignors to Colgate-Palmolive Company, New York, N.Y.

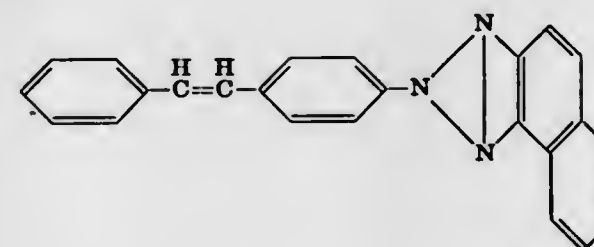
No Drawing. Continuation of application Ser. No. 550,905, May 18, 1966. This application June 12, 1969, Ser. No. 836,213
Int. Cl. C11d 7/56

U.S. Cl. 252—99 10 Claims
Abrasive scouring cleanser compositions comprising an inorganic siliceous abrasive, a detergent and a compound capable of liberating hypobromite bromine upon contact with aqueous media.

3,575,866
NEW BRIGHTENERS, COMPOSITIONS THEREOF
AND PROCESSES FOR USING SAME
Albert F. Strobel, Delmar, and Sigmund C. Catino, Castleton, N.Y., assignors to GAF Corporation, New York, N.Y.

No Drawing. Continuation-in-part of application Ser. No. 539,283, Apr. 1, 1966. This application Nov. 19, 1969, Ser. No. 878,265
Int. Cl. C11d 1/18, 1/38, 1/50, 3/26

U.S. Cl. 252—152 14 Claims
A brightener composition particularly adapted for the brightening of polyesters comprising (a) a compound of the formula:



and (b) a non-ionic surfactant. When such a composition is employed for brightening of a polyester-cotton blend, such composition may additionally contain a stilbene-cyanuric brightener. The active brightener is precipitated

by drowning the above composition, either alone or together with a suitable detergent in the wash water.

3,575,867
NOVEL SOLVENT MIXTURES
Raymond A. Nesbitt, Morristown, and Francis J. Figiel, Boonton, N.J., assignors to Allied Chemical Corporation, New York, N.Y.

No Drawing. Filed Feb. 6, 1969, Ser. No. 797,245
Int. Cl. C09d 9/00; C11d 7/50; C23g 5/02
U.S. Cl. 252—171 13 Claims

Certain mixtures of tetrachlorodifluoroethane and acetonitrile are useful as solvents to remove rosin fluxes from printed circuit boards. These mixtures are useful because of their unusually high solvency characteristics. A narrower class of such mixtures is particularly valuable because, in addition to high solvency characteristics, the mixtures exhibit azeotropic constant boiling characteristics, thereby facilitating handling and purification of the solvent mixtures without significantly altering their compositions.

3,575,868
FLOCCULATING AGENT COMPRISING STARCH
AND POLYACRYLIC ACID
Thomas J. Galvin and Francis A. Hughes, Wilmington, Del., assignors to Atlas Chemical Industries, Inc., Wilmington, Del.

No Drawing. Original application Mar. 4, 1965, Ser. No. 437,309, now Patent No. 3,397,953, dated Aug. 20, 1968. Divided and this application June 6, 1968, Ser. No. 734,871
Int. Cl. B01d 21/01; C01f 7/36; C02b 1/20

U.S. Cl. 252—181 4 Claims
Compositions comprising starch and a polyacrylic acid are disclosed to be effective flocculating agents, especially for the clarification of sodium aluminate solutions obtained by the digestion of aluminiferous ores with caustic alkali solutions.

3,575,869
SUPERSENSITIZING COMBINATIONS OF
MERO CYANINE DYES
Norman W. Kalenda, Rochester, N.Y., assignor to Eastman Kodak Company, Rochester, N.Y.
Filed Dec. 4, 1967, Ser. No. 711,464
Int. Cl. C09k 3/00

U.S. Cl. 252—182 18 Claims
Combinations of at least one simple merocyanine, merocarbocyanine or merodicarbocyanine dye with at least one sulfonic acid derivative of a bis(triazinylamino) stilbene, a dibenzothiophene dioxide, a biphenyl, a terphenyl, a quaterphenyl, a phenanthrene, a pyrene, or a chrysene are used advantageously to supersensitize photographic silver halide emulsions.

3,575,870
CURING COMPOSITION OF POLYETHER AMINES
AND BIS(4 - HYDROXYPHENYL)DIMETHYL-
METHANE

Isao Shimoyama, Dallas, Tex.
(1018 Brookhollow Drive, Irving, Tex. 75060)
No Drawing. Filed Mar. 13, 1969, Ser. No. 815,244
Int. Cl. C08h 17/62

U.S. Cl. 252—182 6 Claims
A curing composition comprising a polyether/amine selected from the group consisting of polyoxypropylenediamines, polyoxypropylenetriamines and polyoxytetramethylenediamines; and bisphenol-A, a method of preparing said curing compositions, and curable compositions prepared from said curing compositions.

3,575,871

TETRAARYL ARYLAMINIUM SALTS AND USE AS INFRARED ABSORBERS

Peter Vincent Susi, Middlesex, and Norma Ann Weston, Somerville, N.J., assignors to American Cyanamid Company, Stamford, Conn.

No Drawing. Continuation-in-part of applications Ser. No. 337,036, June 22, 1964, and Ser. No. 607,390, Jan. 5, 1967, now Patent No. 3,484,467, which is a continuation-in-part of application Ser. No. 333,728, Dec. 26, 1963, which in turn is a continuation-in-part of application Ser. No. 281,056, May 16, 1963. This application Feb. 23, 1967, Ser. No. 617,859

Int. Cl. G02b 5/22; C08f 45/60; C08g 51/60

U.S. Cl. 252—300

10 Claims

A defined class of diaryl-(N,N-diarylaminoaryl)aminium salts useful as infrared absorbers is disclosed; especially the bis(p-dialkylaminophenyl)[N,N-bis(p-dialkylaminophenyl)-p-aminophenyl]aminium salts, such as bis(p-diethylaminophenyl)[N,N-bis(p-diethylaminophenyl)-p-aminophenyl]aminium hexafluoroantimonate. The aminium salts are obtained by oxidation of N,N,N',N'-tetraarylselenodiamines with silver salts.

3,575,872

SELENOCARBAZONES AND THEIR USE AS PHOTOCHROMIC MATERIALS

John Kazan, Jr., Somerville, N.J., assignor to American Cyanamid Company, Stamford, Conn.

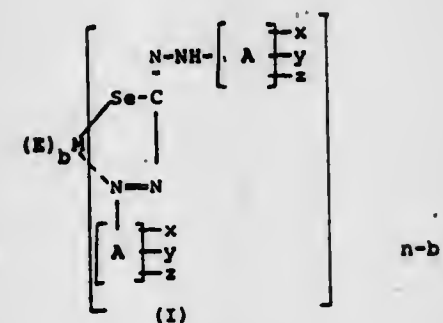
No Drawing. Filed Aug. 27, 1969, Ser. No. 853,506

Int. Cl. G02b 5/22

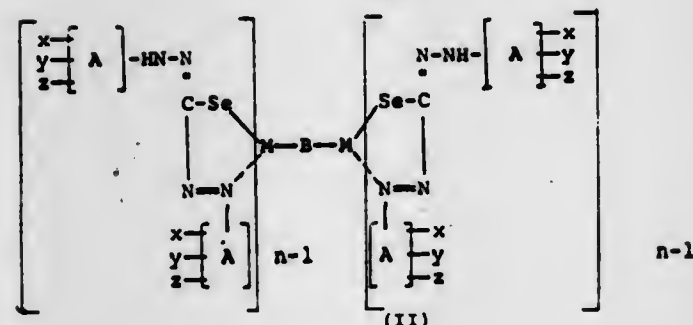
U.S. Cl. 252—300

12 Claims

Photochromic compounds are provided comprising metal complexes of 1,5-diarylselenocarbazones having the formulae:



/and



wherein M is a metal selected from the group consisting of Hg, Zn, Pd and Bi; E is a halogen or R which is a radical selected from the group consisting of alkyl up to 18 carbons, alkenyl of 2-10 carbons, aralkyl and aryl; n is the valence of the metal M; b is an integer from 0 to 2 such that n-b is an integer greater than 0; A is an aryl radical containing from 6 to about 12 carbon atoms; x, y, and z are individually selected from the group consisting of hydrogen, lower alkyl, hydroxy, lower alkoxy, halo, nitro, amino, di-lower alkylamino or phenylazo; and B is alkylene of 2-10 carbon atoms or arylene of 6-12 carbon atoms.

Also, the diarylselenocarbazide and diarylselenocarbazon precursors of said metal complexes are provided.

3,575,873

THERMAL IMAGE INSPECTION PAINT

David Carver, Van Nuys, Calif., assignor to Lockheed Aircraft Corporation, Burbank, Calif.

No Drawing. Filed Feb. 15, 1968, Ser. No. 705,618

Int. Cl. C09k 1/00; F21k 2/00

U.S. Cl. 252—301.3

8 Claims

Formulations are provided for contact thermographic coatings of a type particularly applicable for nondestructive testing of bonded structures. A heat-sensitive (thermographic) phosphor is uniformly dispersed in a vehicle of a type which will not degrade the phosphor's properties or the transmittance of the exciting ultraviolet radiation. The vehicle further provides good adherence and other desirable coating properties. Alternative formulations, including both water-base and organic-solvent base formulations, as well as a strippable (peel coat) version which may be removed from the substrate as a continuous sheet, are provided.

3,575,874

NUCLEAR FUEL CONTAINING PLUTONIUM BOROCARBIDES

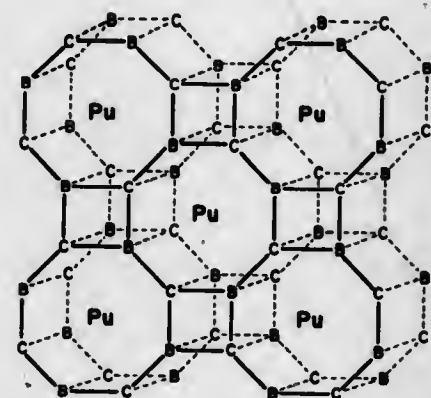
Don B. Sullenger, Centerville, Ohio, assignor to the United States of America as represented by the United States Atomic Energy Commission

Filed Apr. 29, 1969, Ser. No. 820,195

Int. Cl. C01g 56/00

U.S. Cl. 252—301.1

2 Claims



A ceramic fuel for breeder reactors or the like having high radiation and thermal stability selected from the group of plutonium borocarbides and plutonium boronitrides, uranium being substitutable for or includable with the plutonium, and the boron constituent being essentially boron-11.

3,575,875

METHOD FOR PREPARING URANIUM-CONTAINING AQUASOLS EMPLOYING A PLATINUM OXIDE CATALYST

William L. Pattison, Knoxville, and John P. McBride, Oak Ridge, Tenn., assignors to the United States of America as represented by the United States Atomic Energy Commission

No Drawing. Filed May 1, 1969, Ser. No. 821,098

Int. Cl. C09k 3/00

U.S. Cl. 252—301.1

6 Claims

A platinum oxide catalyst, which has the unique property of becoming highly flocculated in the reduced state, is employed in an improved method for preparing stable uranium-containing aquasols from a uranium (VI)-containing feed solution which is catalytically reduced by hydrogen to a uranium (IV)-containing solution in a flow-through reductor vessel. The reduced platinum oxide

catalyst is readily retained in the reductor vessel on a porous filter and the uranium (IV)-containing solution is then processed into a stable uranium-containing aquasol and calcined uranium dioxide microspheres by known sol-gel processes.

3,575,876

WET PROCESS FOR PREPARING ANTIMONY ACTIVATED ALKALINE EARTH METAL HALOPHOSPHATE PHOSPHORS

Roger D. Piper, Des Peres, Mo., assignor to Mallinckrodt Chemical Works, St. Louis, Mo.

No Drawing. Continuation of application Ser. No. 646,493, June 16, 1967. This application Feb. 6, 1970, Ser. No. 7,408

Int. Cl. C09k 1/36

U.S. Cl. 252—301.4

3 Claims

Apatite-type fluorescent compositions are prepared by first precipitating an alkaline earth halophosphate intermediate that is deficient in antimony activator, then digesting the intermediate in a solution containing the antimony activator ions. A brief firing develops the fluorescent capacity to the conventional range.

3,575,877

PREPARATION OF CALCIUM-CONTAINING ALKALINE EARTH METAL HALOPHOSPHATE PHOSPHORS FREE OF TRICALCIUM PHOSPHATE

Hugh C. Bertsch, St. Louis, Mo., assignor to Mallinckrodt Chemical Works, St. Louis, Mo.

No Drawing. Filed June 12, 1968, Ser. No. 736,279

Int. Cl. C09k 1/36

U.S. Cl. 252—301.4

3 Claims

Calcium-containing alkaline earth metal halophosphates prepared by precipitation at temperatures not exceeding 56° C. are essentially free of beta-tricalcium phosphate (TCP) as a secondary phase. The presence of TCP disrupts the normal relationship between manganese content and the color quality of the light emitted by a halophosphate phosphor containing manganese as an activator. Presumably, this is due to preferential absorption of manganese by the secondary TCP phase.

3,575,878

PROCESS FOR RECLAIMING PHOSPHORS

Emil J. Mehalchick, Towanda, and Henry B. Minnier, Dushore, Pa., assignors to Sylvania Electric Products Inc.

No Drawing. Filed Apr. 21, 1969, Ser. No. 818,089

Int. Cl. C09k 1/10

U.S. Cl. 252—301.4

5 Claims

A process for recovering a rare earth oxide phosphor usable form from a material containing a rare earth oxide contaminated with sulfide phosphors selected from the group consisting of zinc sulfide, zinc cadmium sulfide and mixtures thereof is disclosed. The process enables the recovery without destroying the oxide form and comprises forming a relatively uniform mixture consisting essentially of the contaminated material and an amount of ammonium halide stoichiometrically equivalent to the amount of the sulfide phosphor present in the contaminated material and heat treating the relatively uniform mixture at a temperature of at least 1000° C. and for a time sufficient to remove said sulfides.

3,575,879

BIVALENT EUROPIUM ACTIVATED BARIUM OCTABORATE LUMINESCENT MATERIAL

George Blasse and Jaap de Vries, Emmasingel, Eindhoven, Netherlands, assignors to U.S. Philips Corporation, New York, N.Y.

Filed May 9, 1969, Ser. No. 823,347

Claims priority, application Netherlands, May 10, 1968, 6806648

Int. Cl. C09k 1/66

U.S. Cl. 252—301.4

3 Claims

Bivalent europium activated barium octaborate phosphors, in which the greater part of the luminescent energy is radiated between 380 and 440 nm. in response to ultraviolet exciting radiation, have utility in mercury vapor discharge lamps.

3,575,880

PROCESS FOR THE PREPARATION OF A SOLVENT-FREE, AQUEOUS, NEUTRAL CYANURIC CHLORIDE SUSPENSION

Heinzbert Wjahn, Leverkusen, and Ernst August Kleinheldt and Heinrich Gold, Cologne-Stammheim, Germany, assignors to Farbenfabriken Bayer Aktiengesellschaft, Leverkusen, Germany

Filed Aug. 4, 1967, Ser. No. 658,067

Claims priority, application Germany, Aug. 11, 1966, F 49,921

Int. Cl. B01j 13/00

U.S. Cl. 252—311

8 Claims

Neutral, aqueous suspensions of cyanuric chloride, free from organic solvents are prepared by passing molten cyanuric chloride into water maintained at about 146 to 200° C. while maintaining the ratio of water to cyanuric chloride at not below 1:1.

3,575,881

METHOD OF GELLING IONIC LIQUIDS AND GELLED COMPOSITION

Bobby L. Atkins, Robert N. Bashaw, John B. Gardner, and Billy G. Harper, Lake Jackson, Tex., assignors to The Dow Chemical Company, Midland, Mich.

No Drawing. Continuation-in-part of application Ser. No. 418,885, Dec. 16, 1964. This application Dec. 26, 1968, Ser. No. 693,070

Int. Cl. B01j 13/00; C05c 1/00; C11d 7/08

U.S. Cl. 252—316

12 Claims

A method of gelling dilute or concentrated inorganic acids, having an oxidizing potential of less than that of concentrated nitric acid, and aqueous solutions of acids, bases, or salts comprising adding thereto a minor amount of a polymerized organic N-vinyl-substituted heterocyclic nitrogen compound. The polymers used are cross-linked, water-insoluble and water-swellaable, and they are dried and pulverized before being admixed with the ionic liquid to be gelled. The gelled compositions are useful in preparing improved salt-containing fertilizers and in cleaning surfaces.

3,575,882

ENCAPSULATION PROCESS

Jan E. Vandegaer, Wayne, N.J., and Frank G. Meier, Tuxedo, N.Y., assignors to Pennwalt Corporation

No Drawing. Continuation-in-part of application Ser. No. 444,381, Mar. 31, 1965. This application Sept. 25, 1968, Ser. No. 762,603

Int. Cl. B01j 13/02; B44d 1/02

U.S. Cl. 252—316

7 Claims

In a process for encapsulation by interfacial condensation of a pair of complementary, direct-acting, organic,

polycondensate-forming intermediates in separate first and second liquids which are substantially immiscible, thereby encapsulating droplets of the first liquid within a skin of the produced polycondensate, the character of the two liquids being such that the polycondensate skin grows away from the first liquid and into the second liquid at any interface therebetween, the improvement for preventing coalescence and agglomeration of the capsules both during and after the termination of polycondensate skin growth, characterized by the presence of a solid finely divided dispersing agent in the second liquid while the polycondensate skin is growing, the agent being substantially insoluble in the first and second liquids, and being of sufficient particle size to be retained on the polycondensate skin surface.

3,575,883

SURFACTANT COMPOSITIONS

John T. Foley, Verona, N.J., assignor to
Witco Chemical Corporation

No Drawing. Filed June 14, 1965, Ser. No. 463,874
Int. Cl. B01f 17/08; C11d 1/28

U.S. Cl. 252—354

6 Claims

Water-soluble surfactant compositions which are stable in strong alkaline solutions and which are useful as detergents and emulsifiers and which comprise mixtures of (a) condensation products of long chain aliphatic monocarboxylic acids, diethanolamine, and mononuclear aromatic polybasic acids in certain molar ratios to each other, depending upon whether the mononuclear aromatic polybasic acid is dicarboxylic, tricarboxylic, tetracarboxylic or hexacarboxylic, illustrated by a condensation product of 1 mol of a long chain aliphatic monocarboxylic acid, 6 to 7.5 mols of diethanolamine, and 2 to 2.4 mols of phthalic anhydride, with (b) sulfonated aliphatic unsaturated carboxylic acids.

3,575,884

METHOD FOR THE PRODUCTION OF ACTIVE CHARCOAL FROM SAWDUST TREATED WITH SULPHURIC ACID

René-Rodolphe Selter, Lausanne, Switzerland, assignor to
Wilhelm Squindo, Lausanne, Switzerland

No Drawing. Filed June 25, 1968, Ser. No. 739,645
Claims priority, application Switzerland, June 27, 1967,
8,908/67; Dec. 8, 1967, 17,120/67
Int. Cl. C01b 31/08

U.S. Cl. 252—422

11 Claims

An improved method for producing adsorbent charcoal is disclosed, said method involving the distillation of sawdust from resinous woods in the presence of a predetermined amount of diluted sulphuric acid as a twofold-action catalyst. A modification of the method involves the additional step of reheating, upon cooling, at a temperature exceeding by 50° C. the distillation temperature. The addition of pore-filling, coke-forming components is also contemplated. The charcoal so produced is particularly advantageous for various physico-chemical processes, such as purification of waste and sewage waters and others.

3,575,885

SUPPORTED CUPROUS HALIDE ABSORBENTS AND METHODS FOR THEIR PREPARATION

Edward Allen Hunter, Lake Jackson, Tex., and Marcell Albin Segura and William Lambert Senn, Jr., Baton Rouge, La., assignors to Esso Research and Engineering Company

No Drawing. Filed Mar. 1, 1965, Ser. No. 436,375
Int. Cl. B01j 11/24

U.S. Cl. 252—429

17 Claims

Supported active cuprous halide sorbents are prepared by contacting a cuprous halide solution with a porous, particulate support, such as silica and/or alumina to im-

pregnate the cuprous halide therein, then contacting the impregnated support with a suitable ligand, such as butadiene, to form an insoluble complex within the pores of the support, and activating the sorbent by decomplexing the complex.

3,575,886

CATALYST AND OXIDATION OF OLEFINS

Louis E. Trapasso, Westfield, N.J., and John D. Wenrick, Cuyahoga Falls, Ohio, assignors to The B. F. Goodrich Company, New York, N.Y.

No Drawing. Original application June 28, 1966, Ser. No. 561,043, now Patent No. 3,497,553, dated Feb. 24, 1970. Divided and this application July 25, 1969, Ser. No. 869,417

Int. Cl. B01j 11/74

U.S. Cl. 252—439

2 Claims

A catalyst for oxidizing olefins to produce unsaturated aldehydes and monocarboxylic acids which comprises oxides of nickel, chromium, molybdenum and tellurium in a molar ratio of 0.5–5 nickel, 0.5–2 chromium, 0.5–4 tellurium and molybdenum in an amount such that the ratio of nickel to molybdenum is from 0.1 to less than 1.

3,575,887

FLUORIDE-CONTAINING CRYSTALLINE ALUMINO-SILICATES

William B. Wilson, Pleasant Hill, Calif., assignor to Shell Oil Company, New York, N.Y.

No Drawing. Filed Mar. 19, 1968, Ser. No. 714,319

Int. Cl. B01j 11/78

U.S. Cl. 252—442

15 Claims

A novel crystalline alumino-silicate containing fluorine incorporated into the crystalline structure is prepared by treatment of an alumino-silicate sequentially with a dilute non-fluoride acid solution followed by treatment with a halogen solution containing fluoride and chloride ions. The fluoride-containing alumino-silicates are highly active and stable hydroconversion catalysts especially when composited with a hydrogenative metal component.

3,575,888

SILVER CATALYST

John C. Long, Houston, Tex., assignor to Shell Oil Company, New York, N.Y.

No Drawing. Filed Apr. 28, 1969, Ser. No. 819,961

Int. Cl. B01j 11/20

U.S. Cl. 252—476

7 Claims

A supported silver catalyst, useful in the preparation of ethylene oxide, is produced by reducing a dried, supported, reducible silver compound, in the absence of any substantial amount of water, with a solution of a reducing agent in a suitable solvent in which the silver compound is at most only slightly soluble.

3,575,889

FILM FORMING COATING AGENTS WITH INCREASED ELECTRONIC CONDUCTIVITY

Walter Klopfer, Frankfurt am Main, Helmut Rabenhorst, Frankfurt-Niederrad (Main), and Winfried Willicks, Hofheim, Taunus, Germany, assignors to Henkel & Cie G.m.b.H., Dusseldorf-Holthausen, Germany

No Drawing. Filed Feb. 2, 1967, Ser. No. 613,446
Claims priority, application Germany, Feb. 25, 1966,
H 58,646

Int. Cl. H01b 1/06

U.S. Cl. 252—500

12 Claims

Film forming coating agents with increased electronic conductivity containing (1) electron Donators comprising film forming polymers containing aromatic or heterocyclic rings and electron repelling groups, whose ionization energy (I) is less than 8.0 ev. and (2) electron

Acceptors comprising monomeric, olefinically unsaturated compounds, quinonoid compounds or benzenoid compounds having electron attracting groups, whose electron affinity (E_A) is more than 1.0 ev., in a molar ratio of Acceptor to Donator of 1:500 to 4:10 and $I-E_A$ being between 4.5 to 6.0 ev. The film forming coating agents are useful for antistatic finishing of non-conductive synthetic polymer products.

3,575,890

OXAZINE AND OXAZOLINE DERIVED C-N BACKBONE POLYMERS

Morton Herbert Litt, University Heights, Cleveland, Ohio, Francis W. Evans, Pratteln, Switzerland, and Joseph T. Mellillo, South Orange, N.J., assignors to Allied Chemical Corporation, New York, N.Y.

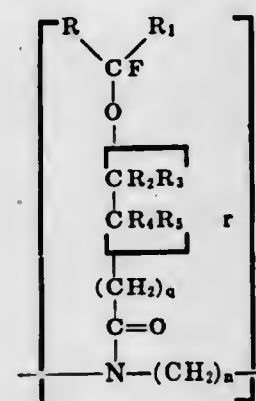
No Drawing. Filed Feb. 26, 1969, Ser. No. 802,672

Int. Cl. C08g 33/02

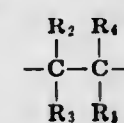
U.S. Cl. 260—2

6 Claims

Polymers comprising recurring units of the structure:

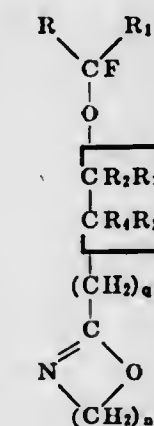


wherein R and R_1 , which can be the same or different, are perhalogenated alkyl radicals in which the halogen atoms are chlorine, or fluorine, with at least one fluorine atom being attached to each carbon atom; wherein R and R_1 together contain a total of from 2 to 8 carbon atoms; wherein R_2 , R_3 , R_4 and R_5 are independently chlorine, fluorine, hydrogen, or perfluoromethyl with not more than one of the substituent groups R_2 , R_3 , R_4 or R_5 in any



unit being trifluoromethyl, and not more than two being chlorine; wherein r is 0 to 5; wherein q is 0 to 11 with q being at least 1 when r=0; and wherein n at each occurrence is independently 2 or 3; have a low critical surface energy and are useful in imparting oil and water repellency to fabrics impregnated or coated therewith.

These polymers are prepared from novel monomers of the structure



wherein n is 2 or 3, and wherein R, R_1 , R_2 , R_3 , R_4 , R_5 , r and q are as defined above.

3,575,891

STABILIZED POLYIMIDES

John R. Le Blanc, Wilbraham, Edward Lavin, Longmeadow, Albert H. Markhart, Wilbraham, and Irving Serlin, Springfield, Mass., assignors to Monsanto Company, St. Louis, Mo.

No Drawing. Filed Jan. 2, 1968, Ser. No. 694,833

Int. Cl. C08g 51/56, 51/58, 51/60

U.S. Cl. 260—2.5

18 Claims

Disclosed herein are resin systems characterized by improved oxidative thermal stability which are obtained by incorporating a beneficiating stabilizing additive into a polymer forming composition comprising (1) aromatic polycarboxylic components containing from three to four carboxylic acid groups per molecule selected from the group consisting of free polycarboxylic acids, esters of polycarboxylic acids and ammonium salts of polycarboxylic acids and (2) a polyamine component having at least two primary amino groups per molecule. The beneficiating stabilizing additives used in the practice of the present invention include boric acid, phosphoric acid, sulfuric acid and their acid derivatives and esters and ammonium salts of the foregoing acids.

3,575,892

LIQUID BUTANE PROCESS FOR PREPARING FOAMABLE BEADS

Michael Erchak, Jr., Ridgewood, Philip L. Mercler, Ramsey, and Kenneth W. Doak, Wyckoff, N.J., assignors to Dart Industries Inc., Los Angeles, Calif.

No Drawing. Filed Feb. 9, 1968, Ser. No. 704,233

Int. Cl. C08f 47/10; C08v 1/26

U.S. Cl. 260—2.5

8 Claims

The process comprises impregnating beads of a polymer such as polystyrene in a non-aqueous environment with liquefied butane at conditions sufficient to maintain the butane in its liquefied state, removing the excess butane from the impregnated beads and recovering the foamable beads.

3,575,893

COPOLYMERS CONTAINING PHENYLDIMETHYL CARBINOL GROUPS

Hans-Josef Buysch and Heinrich Krimm, Krefeld-Bochum, Hermann Schnell, Krefeld-Urdingen, and Georg Malamet, Krefeld, Germany, assignors to Farbenfabriken Bayer Aktiengesellschaft, Leverkusen, Germany

No Drawing. Filed June 25, 1968, Ser. No. 739,659

Claims priority, application Germany, July 11, 1967,
F 52,917; July 12, 1967, F 52,931; Apr. 26, 1968,
P 17 70 272.6

Int. Cl. C08f 15/00, 47/10

U.S. Cl. 260—2.5

4 Claims

Copolymers containing phenyldimethyl carbinol groups, crosslinked plastics comprising said copolymers and foams of the crosslinked copolymers. The processes for preparing the copolymers, crosslinked copolymers and foams are also disclosed.

3,575,894

PROCESS FOR MAKING WATER VAPOR PERMEABLE MICROPOROUS SHEETING

Bruno Zorn, Cologne-Flittard, Harald Oertel, Odenthal-Globus, and Dieter Dieterich, Leverkusen, Germany, assignors to Farbenfabriken Bayer Aktiengesellschaft, Leverkusen, Germany

No Drawing. Continuation-in-part of application Ser. No. 647,590, June 21, 1967. This application July 22, 1968,
Ser. No. 746,253

Claims priority, application Germany, July 22, 1967,
F 53,031

Int. Cl. C08g 53/08, 1/20

U.S. Cl. 260—2.5

11 Claims

A process for producing microporous sheeting permeable to water vapor comprising dissolving from about 90 to about 70 parts by weight of (A) a polyurethane urea

having substantially no free NCO groups and from about 10 to about 30 parts by weight of (B) a high molecular weight substantially linear cationic polyurethane having substantially no free NCO groups in (C) a water soluble strongly polar solvent for the polyurethane urea (A), the solvent having a boiling point above about 100° C., said solution containing (E) from about 0.5 to 7% by weight, based on the total solution, of water to yield a solution (D), shaping the solution (D) and extracting the solvent from the resulting product. Solution (D) may either be exposed to moist air in order to effect gelling prior to extracting the solvent with a non-solvent which is miscible with the solvent or may be treated with a solvent/non-solvent mixture, subsequently with further solvent/non-solvent mixtures of decreasing solvent content and finally with pure non-solvent. In this latter mode of operation gelling in moist air may be omitted.

3,575,895

USE OF A HYDROCARBON UREA ADDUCT IN MAKING SPONGE RUBBER

Norman C. Ross, Franklin, and Bernard K. Mueller, Bakersfield, Pa., assignors to Witco Chemical Corporation, New York, N.Y.

No Drawing. Original application Aug. 26, 1966, Ser. No. 575,250, now Patent No. 3,502,632, dated Mar. 24, 1970. Divided and this application Feb. 5, 1969, Ser. No. 823,213

Int. Cl. C08f 47/10; C08j 1/18, 1/20

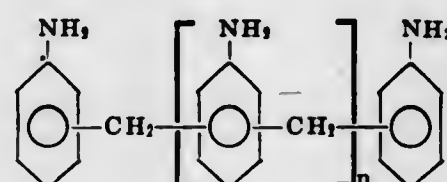
U.S. Cl. 260—2.5

2 Claims

Production of sponge rubber by adding to a vulcanizable rubber compound a blowing agent and a small

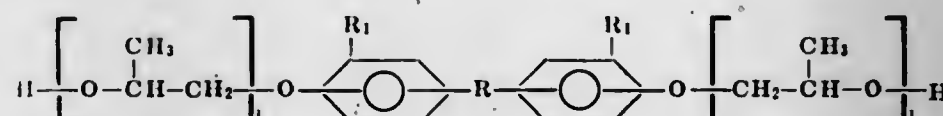
of about 2000, (II) a mixture of a diol having a molecular weight of about 1000 and a diol having a molecular weight of about 2000, wherein the 1000 molecular weight diol is present in an amount up to about 30 percent by weight of the mixture of 1000 and 2000 molecular weight diols, (III) a mixture of a diol having a molecular weight of about 2000 and 1,4-butane diol and (IV) a mixture of a diol having a molecular weight of about 1000, a diol having a molecular weight of about 2000 and 1,4-butane diol;

- (D) a blowing agent;
(E) an organo-metallic catalyst;
(F) an aromatic amine having the formula



wherein n equals from about 0.1 to about 0.3; and

- (G) a hydroxy compound selected from the group consisting of (III) N,N-di-(2-hydroxypropyl) aniline and (IV) an aromatic diol having the formula



amount of an adduction product of urea with a stoichiometric excess of a solution containing between about 25 and 75 weight percent of n-paraffin hydrocarbon having about 17 to 30 carbon atoms in light neutral paraffinic oil, and effecting sponging of said rubber.

3,575,896

MICROCELLULAR FOAMS HAVING A LOW GLASS TRANSITION TEMPERATURE

Obaidur Rahman Khan, Center Harbor, N.H., assignor to Davidson Rubber Company, Inc., Dover, N.H.

No Drawing. Continuation-in-part of application Ser. No. 754,114, Aug. 16, 1968. This application June 3, 1969, Ser. No. 830,094

Int. Cl. C08g 22/08, 22/46, 53/08

U.S. Cl. 260—2.5

4 Claims

A microcellular polyurethane foam having an integral skin prepared by reacting:

- (1) a prepolymer system having an —NCO content of from 6 to 12 percent made by reacting:
 - (A) toluene diisocyanate with
 - (B) an organic diol selected from the group consisting of (I) a diol having a molecular weight of about 1000, (II) a diol having a molecular weight of about 2000 and (III) a mixture of a diol having a molecular weight of about 1000 and a diol having a molecular weight of about 2000; and
- (2) a catalyst system comprising:
 - (C) an organic diol selected from the group consisting of (I) a diol having a molecular weight

and (V) mixtures of (III) and (IV); the proportions of (A) to (B) to (C) to (F) to (G) being such that:

- (a) the isocyanate index is from about 100 to about 120;
- (b) the —NH₂ from aromatic amine to —OH ratio is in the range of from 0.5:1.0 to 1.0:1.0;
- (c) the weight ratio of (G) to the sum of (F) and (G) is in the range of from 0.75:1.0 to 0.95:1.0 when (G) is N,N-di-(2-hydroxypropyl)-aniline and when an aromatic diol is employed as a substitute in total or in part for N,N-di-(2-hydroxypropyl)-aniline, said aromatic diol is employed in an amount chemically equivalent to the amount of N,N-di-(2-hydroxypropyl)-aniline being replaced.

3,575,897

FOAMED FLUORINATED HYDROCARBON POLYMERS

William S. Port, Andover, and Arthur R. Taverna, Lexington, Mass., assignors to Avco Corporation, Cincinnati, Ohio

No Drawing. Continuation of application Ser. No. 546,620, May 2, 1966. This application June 6, 1969, Ser. No. 832,555

Int. Cl. B29d 27/00; C08f 3/22, 47/10

U.S. Cl. 260—2.5

4 Claims

A method of making a low density polymeric foam through the utilization of a foaming agent which dissociates reversibly under the control of temperature and pressure.

3,575,898

POLYVINYL CHLORIDE-ANTIMONY OXIDE FLAME-RETARDANT MIXTURES FOR CELLULOSIC SPINNING DOPES

Robert L. McClure, Elizabethton, Tenn., assignor to Beannit Corporation, New York, N.Y.

No Drawing. Filed June 20, 1968, Ser. No. 738,399

Int. Cl. D01f 3/04

U.S. Cl. 260—17.4

2 Claims

The present invention relates to cellulosic compositions which are capable of being formed into flame-retardant structures, such as fibers, filaments, films and the like. These flame-retardant cellulosic compositions are prepared by adding a flame-retarding amount of a mixture comprised of a vinyl chloride polymer and an antimony oxide to cellulosic spinning solutions or dopes followed by the coagulation of these solutions or dopes to produce flame-retardant cellulosic shaped articles, such as filaments, fibers, films and the like.

3,575,899

LAUNDERABLY REMOVEABLE, SOIL AND STAIN RESISTANT FABRIC TREATMENT

Donald M. Pryor, Oakdale Township, Washington County, and Edward C. McCue, Woodbury Township, Washington County, Minn., assignors to Minnesota Mining and Manufacturing Co., St. Paul, Minn.

No Drawing. Continuation-in-part of application Ser. No. 489,070, Sept. 21, 1965. This application July 28, 1969, Ser. No. 845,563

Int. Cl. C08f 29/16, 3/64

U.S. Cl. 260—17.4

13 Claims

A non-durable treating composition for frequently laundered fabrics which renders the surface of fabrics treated therewith soil and stain resistant. The treating composition is removed from the fabric surface by laundering. The treating composition comprises an aqueous suspension of a water insoluble fluorocarbon compound containing a hydrophobic and oleophobic perfluoroalkyl group of at least 3 carbon atoms adsorbed on a water soluble organic film-forming fabric sizing agent, said suspension having a maximum solids content of about 25 weight percent. A method of treating fabrics and treated fabrics are also disclosed.

3,575,900

ELECTROSTATICALLY SPRAYABLE ALUMINUM-PIGMENTED PAINTS AND PROCESS FOR PRODUCING SAME

Charles A. Ponyik, Jr., Maple Heights, Ohio, assignor to Mobil Oil Corporation

No Drawing. Filed Mar. 18, 1969, Ser. No. 808,306

Int. Cl. C09d 3/64, 3/74, 5/24

U.S. Cl. 260—21

7 Claims

A resin such as a vinyl chloride copolymer is dissolved in an oxygen-containing solvent, such as methyl ethyl ketone, and an aluminum pigment paste is dispersed therein. The proportion of hydrocarbon solvent is increased until the resin precipitates colloiddally on the aluminum pigment to form a concentrate in which the aluminum particles are protected. The concentrate can be incorporated in paints which are electrostatically sprayable.

3,575,901

POLYESTER AND ALKYD RESINS INCLUDING TERTIARY ALKYL MANOAMINE COMPONENT

Henry Ashjian, East Brunswick, N.J., assignor to Mobil Oil Corporation

No Drawing. Filed Apr. 4, 1969, Ser. No. 813,722

Int. Cl. C09d 3/64, 3/66

U.S. Cl. 260—22

17 Claims

Polyester resins, and especially alkyd resins in mineral spirit solution, are modified for improved compatibility

with other resins by condensing into the polyester, including alkyd resins, from 3 to about 30% by weight of alkyl monoamine in which the carbon atom carrying the amine group is a tertiary carbon atom.

3,575,902

ELECTRODEPOSITION OF ACID RESIN I

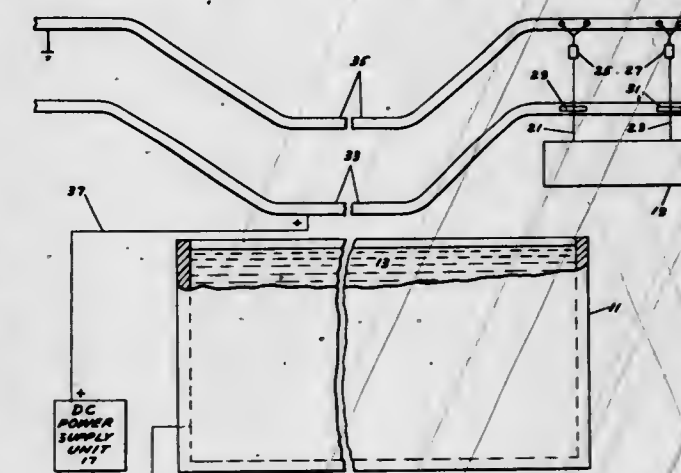
Ivan H. Tsou, Pontiac, Mich., assignor to Ford Motor Company, Dearborn, Mich.

Continuation-in-part of application Ser. No. 363,813, Apr. 30, 1964. This application Apr. 24, 1968, Ser. No. 734,827

Int. Cl. C08g 30/00

U.S. Cl. 260—23

2 Claims



A paint bath composition for electrodeposition of paint upon an anode comprising an aqueous dispersion of particulate pigment, a water soluble base, and a polycarboxylic acid resin having olefinically unsaturated side chains and formed by first reacting a polyhydroxylated polymer with an olefinically unsaturated, acyclic, carboxylic acid of about 18 carbon atoms, reacting the resulting resin with trimellitic anhydride and subsequently reacting the resultant acid resin with a polyolefin glycol having a molecular weight in excess of about 200.

3,575,903

ANTISTATIC COMPOSITIONS OF POLYSTYRENES AND N-OXYETHYLATED ALKYLAMINES

Konrad Rombusch and Friedrich Selfert, Marl, Germany, assignors to Chemische Werke Huls A.G., Marl, Germany

No Drawing. Filed July 20, 1966, Ser. No. 566,474

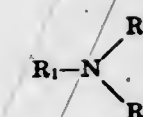
Claims priority, application Germany, July 29, 1965, P 15 44 712.8

Int. Cl. C08f 33/02, 19/08, 19/18

U.S. Cl. 260—23

12 Claims

1. An antistatic composition comprising a normally solid polymer of styrene having substantially uniformly and intimately distributed therein from 0.5 to 3.0% by weight of at least one N-oxyethylated alkylamine of the formula:



wherein

R₁ represents an alkyl or alkenyl of 6–22 carbon atoms; R₂ and R₃, being the same or different, each represents —(C₂H₄O)_nH, n being 1 to 3, or hydrogen, with the provision that R₂ and R₃ cannot both simultaneously represent hydrogen, and further distributed uniformly and intimately in said polymer of styrene, a fatty acid of 6–22 carbon atoms in a concentration of not more than 100 molar percent based on said N-oxyethylated alkylamine.

3,575,904

LATICES COMPRISING POLYMER MONOMER AND AUTOXIDIZABLE MATERIAL

Michael Raymond Clarke, Frankstone, Victoria, Australia, assignor to Balm Paints Limited, Melbourne, Victoria, Australia

No Drawing. Continuation-in-part of application Ser. No. 516,690, Dec. 27, 1965. This application Dec. 28, 1966, Ser. No. 605,169

Claims priority, application Australia, Jan. 5, 1965, 53,587/65

Int. Cl. C09d 5/02

U.S. Cl. 260—23

16 Claims

A composition which comprises a dispersion of film-forming polymer in an aqueous liquid, an autoxidizable material which in the presence of oxygen provides radicals to initiate addition polymerization, and an ethylenically unsaturated monomer which is readily homopolymerizable by such radicals. When this composition is exposed to air, particularly as a thin film of coating composition such as paint, autoxidation of the autoxidizable material takes place to provide radicals capable of polymerizing an ethylenically unsaturated monomer and a polymerization reaction occurs, the autoxidizable material also being itself modified by the autoxidation and/or subsequent polymerization reaction. This modification of the autoxidizable material and/or the polymerization reaction can be made use of in hardening up a polymer film formed from particles initially soft enough to integrate at the film-forming temperature.

3,575,905

HEAT STABILIZERS FOR POLYVINYL CHLORIDE AND SIMILAR POLYMERS

Philip H. Rhodes, Cincinnati, Ohio, assignor to Emery Industries, Inc., Cincinnati, Ohio

Filed Feb. 1, 1968, Ser. No. 702,408

Int. Cl. C08f 45/58, 45/02

U.S. Cl. 260—23

7 Claims

Polymers and copolymers of vinyl chloride can be thermally stabilized by adding an aryl alkyl phosphite together with a zinc salt in an amount corresponding to between 0.0005 and 0.005 part of divalent zinc. In these amounts, zinc effectively retards thermal discoloration without causing sudden degradation. The stabilized polymer compositions may also contain other conventional plastics additives.

3,575,906

VINYL CHLORIDE POLYMER MIXTURES FOR THE PREPARATION OF TRANSPARENT RIGID SHEETS

Gerhard Kuhne, Burghausen (Salzach), and Erich Zentner, Burghausen (Alz), Germany, assignors to Farbwerke Hoechst Aktiengesellschaft vormals Meister Lucius & Bruning, Frankfurt am Main, Germany

No Drawing. Filed June 7, 1968, Ser. No. 735,164
Claims priority, application Germany, June 13, 1967, F 52,663

Int. Cl. C08f 29/24, 37/18, 45/58

U.S. Cl. 260—23.7

4 Claims

The present invention relates to rigid sheets on the basis of polyvinyl chloride, plastomers and elastomers, said sheets being obtained by a calendaring process. The material comprises (a) an emulsion homo- or copolymer of vinyl chloride, (b) a suspension polymer of vinyl chloride, (c) a graft copolymer of vinyl chloride based on a cross-linked copolymer of a conjugated diene and acrylo- or methacrylonitrile, and eventually (d) a cross-linked elastomeric copolymer similar to the basic copolymer of (c). The sheets according to the invention have an improved impact resistance and deep-drawing properties in combination with a good transparency and good other physical constants.

3,575,907

POLYPIVALOLACTONE FIBERS AND A METHOD FOR THEIR MANUFACTURE

Tohru Kitazawa, Osaka, Hiroshi Maeda, Kobe, and Hideo Yoshidome and Hidehiko Sakata, Osaka, Japan, assignors to Kanegafuchi Boseki Kabushiki Kaisha, Tokyo, Japan

No Drawing. Filed July 27, 1967, Ser. No. 656,350
Claims priority, application Japan, July 29, 1966, 41/49,782, 41/49,783, 41/49,784

Int. Cl. C08f 29/12, 37/18

U.S. Cl. 260—28

8 Claims

A drawn, tenacious polypivalolactone fiber having a density of 1.17 at the most and a sufficient heat-setting ability which comprises a polymer consisting essentially of polypivalolactone which can be obtained by uniformly incorporating a polymer consisting essentially of polypivalolactone with a small amount of at least one organic compound selected from the group consisting of polyethylene, partially oxidized polyethylene, copolymers of ethylene and α,β -ethylenic unsaturated carboxylic acid, polyethylene oxide, paraffinic hydrocarbons, esters of phosphoric acid and esters of phosphorous acid, extruding the mixture through an orifice of a spinneret, applying high draft to the extruded mixture while it is still in a molten or plasticized state to thereby form undrawn fibers, and thereafter, drawing said undrawn fiber. Said uniform admixture of said compound leads to broadened ranges of the conditions suitable for spinning, improved feasibility of operation, retardation of crystallizing velocity of the polymer after being spun and solidified, and markedly improved orientation.

3,575,908

USE OF ASPHALTENES TO INCREASE THE IMPACT RESISTANCE OF POLYETHYLENE TEREPHTHALATE

Robert J. Bathgate, Media, Pa., assignor to Sun Oil Company, Philadelphia, Pa.

No Drawing. Filed Sept. 12, 1968, Ser. No. 759,513

Int. Cl. C08h 13/08

U.S. Cl. 260—28

4 Claims

A new composition having superior physical properties which consists of polyethylene terephthalate and up to 12% by weight asphaltene.

3,575,909

ELECTRODEPOSITION BATH COMPOSITION AND REPLENISHMENT COMPOSITION THEREFOR

Allan E. Gilchrist, Westlake, Ohio, assignor to Ford Motor Company, Dearborn, Mich.

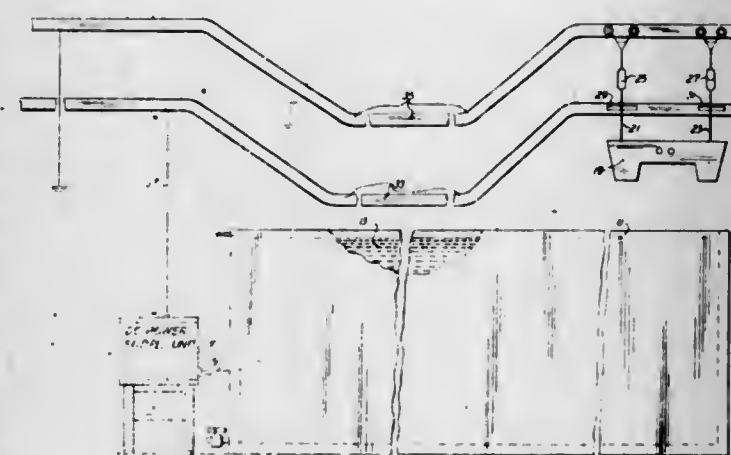
Original application Jan. 4, 1966, Ser. No. 518,667, now Patent No. 3,362,899, dated Jan. 9, 1968. Divided and this application Oct. 9, 1967, Ser. No. 673,879

The portion of the term of the patent subsequent to Jan. 18, 1983, has been disclaimed

Int. Cl. C08g 51/02

U.S. Cl. 260—29.2

7 Claims



This application discloses a coating bath composition, a high solids content replenishment composition for dispersion in said bath and a method for preparing a high

solids replenishment composition for dispersion in said bath. The coating bath comprises an intimate mixture of water, binder resin and water soluble amino compound wherein the weight ratio of binder resin to pigment is at least about 2:1 and substantially above the same ratio in the paint film that will electrodeposit from such bath. In the replenishment composition, this ratio is at least about 1.5:1 and substantially the same as the same ratio in the paint film that will electrodeposit from said bath.

radicals, β -hydroxyalkyl radicals, or oxydiethylene when taken together; and n is 1 or 2.

3,575,913

STABLE LATEX FOR PAPER COATING COMPOSITIONS

Gary L. Meier, Midland, Mich., assignor to The Dow Chemical Company, Midland, Mich.

No Drawing. Filed Apr. 8, 1968, Ser. No. 719,731

Int. Cl. B32b 29/06; C08d 3/06; C08f 15/40

U.S. Cl. 260—29.7

14 Claims

A latex having improved pigment stability for use in paper coating is prepared by a process for emulsion polymerization of ethylenically unsaturated monomers, in which process a monoethylenically unsaturated dicarboxylic acid is fed initially to a reaction zone, the preponderant proportion of the monomeric composition, comprising an alkenyl aromatic monomer such as styrene and a conjugated diene such as 1,3-butadiene, is fed to the reactor, preferably in a continuous manner, and polymerization is carried out by free-radical producing means such as an inorganic persulfate catalyst until at least about 90 percent conversion of the monomers and then from about 1 percent to about 5 percent, based on the total weight of the monomeric composition, of an acrylic acid is added and polymerized at a temperature of from about 70° C. to about 100° C., preferably from about 90° C. to about 95° C. preferably also with the concurrent or subsequent addition of from about 0.1 to about 0.6 percent by weight of an inorganic persulfate catalyst, the percentage being based on the total monomer weight.

3,575,910

SILOXANE-ACRYLATE COPOLYMERS AND EMULSIONS THEREOF

Robert N. Thomas, Midland, Mich., assignor to Dow Corning Corporation, Midland, Mich.

No Drawing. Continuation of application Ser. No. 554,984, June 3, 1966, which is a continuation-in-part of application Ser. No. 482,591, Aug. 25, 1965. This application July 1, 1968, Ser. No. 741,246

Int. Cl. C08f 45/24, 35/02, 11/04

U.S. Cl. 260—29.6

12 Claims

Silicone-acrylate copolymers, aqueous emulsions of these copolymers, latex paints containing the copolymers and articles of manufacture having a coating containing the copolymers are disclosed. The copolymers, particularly as aqueous emulsions, are useful in preparing latex coatings.

3,575,911

ADHESIVES

Richard L. Peterson, Hudson, Wis., assignor to Minnesota Mining and Manufacturing Company, St. Paul, Minn.

No Drawing. Original application Nov. 19, 1964, Ser. No. 412,329, now Patent No. 3,441,430, dated Apr. 29, 1969. Divided and this application June 19, 1968, Ser. No. 751,328

Int. Cl. C08f 45/24

U.S. Cl. 260—29.6

2 Claims

Water-soluble adhesive compositions are made by copolymerizing 60–95 parts of an acrylic acid and correspondingly 40 to 5 parts of a water-soluble homopolymerizable acrylate (e.g., 2-ethoxy ethyl acrylate), thereafter adding 100–200 parts of compatible liquid water-soluble ether plasticizer, up to 2 parts of strong alkali, and ½ to 3 parts of polyfunctional crosslinking agent.

3,575,912

SHORT STOPPING SYNTHETIC RUBBER POLYMERIZATION WITH HYDROQUINONE TERTIARY AMINE OXIDE COMPOUND

Harry Elmer Albert, Lafayette Hill, Pa., assignor to Pennwalt Corporation

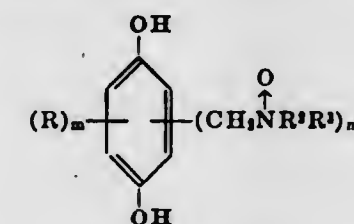
No Drawing. Filed May 22, 1968, Ser. No. 731,274

Int. Cl. C08d 1/09, 1/36

U.S. Cl. 260—29.7

9 Claims

A process for short-stopping polymerizations, particularly polymerization processes for making synthetic rubber latices such as butadiene-styrene copolymers, where the short-stopping agent is a hydroquinone tertiary amine oxide of the structure



where R is an alkyl radical, chlorine, bromine, nitro or a $-(\text{CH}_2\text{NR}^2\text{R}^3)$ group; m is 0 or 1; R^2 and R^3 are alkyl

3,575,915

DENTURE ADHESIVE COMPOSITIONS

Leo Novak, Union, and Ling Wei and Robert Marchisotto, East Brunswick, N.J., assignors to Schering Corporation, Bloomfield, N.J.

No Drawing. Filed May 26, 1969, Ser. No. 827,934

Int. Cl. A61c 13/10

U.S. Cl. 260—29.6

9 Claims

Disclosed herein is a superior denture adhesive composition comprising polyvinyl acetate, water, ethanol, a mineral hydrocolloid and a plasticizer.

3,575,916

IMPREGNATING AND COATING COMPOSITION FOR POROUS CERAMIC INSULATION

Lawrence G. Bockstie, Jr., Bradford, Pa., assignor to Corning Glass Works, Corning, N.Y.

No Drawing. Filed Dec. 8, 1967, Ser. No. 688,974
Int. Cl. C08g 51/34

U.S. Cl. 260—33.4

13 Claims

A coating and impregnating composition suitable for providing a water repellent, abrasion, scratch, chip and dirt resistant coating on a ceramic insulating surface comprising a solvent, a suspension of a resin, a silicone and a partially hydrolyzed tetra-alkyl orthosilicate.

3,575,917

METHOD OF STABILIZING CATALYZED ORGANOPOLYSILOXANES

Ales M. Kapral, Chicago, Ill., assignor to Dow Corning Corporation, Midland, Mich.

No Drawing. Filed Mar. 28, 1969, Ser. No. 811,659
Int. Cl. C08g 51/28, 51/12

U.S. Cl. 260—33.6

9 Claims

A process for the preparation and a composition of a liquid, catalyzed, stable, curable silicon coating with an unlimited bathlife which is a combination of an organopolysiloxane, a polyalkoxysilane, an alcohol, an ester of orthosilicic acid and an organometal curing catalyst, preferably prepared with the aid of ultrasonic vibrations. Such product is perfectly stable and inactive in a solvent solution but easily activated by evaporation of the solvent to cure rapidly at a low temperature. It produces a superior release coating on paper or in film.

3,575,918

CATALYST AND METHOD OF POLYESTER POLYMERIZATION

David A. Daniels, Kendall Park, N.J., and Rowland L. Orem, Jr., Baltimore, and Edwin E. Lard, Bowie, Md., assignors to W. R. Grace & Co., New York, N.Y.

No Drawing. Filed Dec. 10, 1968, Ser. No. 782,734
Int. Cl. C08g 51/04, 17/00

U.S. Cl. 260—40

16 Claims

A catalyst, containing a ketone peroxide, e.g., methyl ethyl ketone peroxide, and an organic non-ketonic diperoxide, e.g., 2,5-dimethyl-2,5-bis(2-ethyl hexanoyl peroxy) hexane, is used to cure polyester resins containing over 900 p.p.m. of an inhibitor. A small amount of sodium methoxide can be used as part of the catalyst. More specifically, polyester resins containing 900 to 40,000 p.p.m. of inhibitors can be cured within 10 minutes to 24 hours with the novel catalyst.

3,575,919

METHOD FOR CONTINUOUS PIGMENTATION OF POLYESTERS IN A CONTINUOUS CONDENSATION PROCESS

Walter Busweiler, Hanau am Main, and Heinz Schätzle, Dornigheim am Main, Germany, and Bernhard Stoll, Domat-Ems Grisons, Switzerland, assignors to Inventa A.G. für Forschung und Patentverwertung, Zurich, Switzerland

Filed May 12, 1969, Ser. No. 823,641

Claims priority, application Switzerland, May 17, 1968, 8,622/68

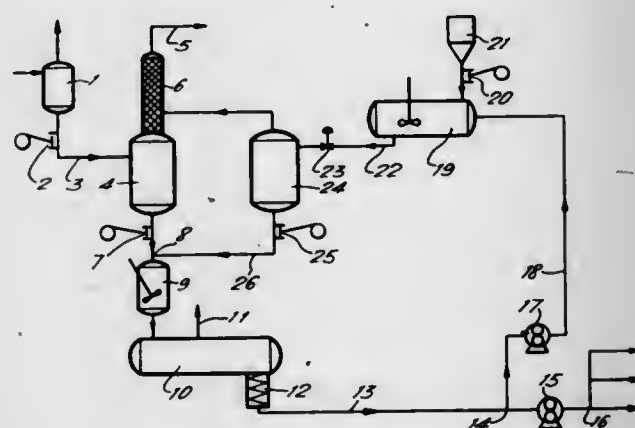
Int. Cl. C08g 51/04

U.S. Cl. 260—40

8 Claims

A method for the pigmentation of a polyester in a continuous polymerization process is disclosed. The polyester is condensed to form a stream of precondensate. The precondensate is then further condensed to form a stream of high polycondensate. A partial stream of high poly-

condensate is branched off from the high polycondensate stream and pigmented. The pigmented partial stream is then combined and mixed with the precondensate stream.



Alternatively, the pigmented partial stream is polycondensed, then combined and mixed with the high polycondensate stream.

3,575,920

VULCANIZABLE COMPOSITIONS OF AN OLEFIN POLYMER OR COPOLYMER AND VULCANIZED ARTICLES OBTAINED THEREFROM

Giuliano Ballini and Carlo Bujtar, Ferrara, Italy, assignors to Montecatini Edison S.p.A., Milan, Italy

No Drawing. Continuation-in-part of application Ser. No. 492,860, Oct. 4, 1965, which is a continuation-in-part of application Ser. No. 483,843, Aug. 30, 1965. This application Feb. 12, 1968, Ser. No. 705,264

Int. Cl. C07c 43/30; C08k 1/32

U.S. Cl. 260—41

11 Claims

Vulcanizable composition of elastomeric polymer, reinforcing filler, free-radical acceptor and organic peroxy-ether free-radical generator wherein carbon atom bound to both ether and peroxy radical is substituted with member selected from alkyl, cycloalkyl and aryl radicals and contains no hydrogen substituent, and vulcanized article obtained therefrom.

3,575,921

ORGANOSILOXANE POLYMERS

Chi-long Lee, Midland, Mich., assignor to Dow Corning Corporation, Midland, Mich.

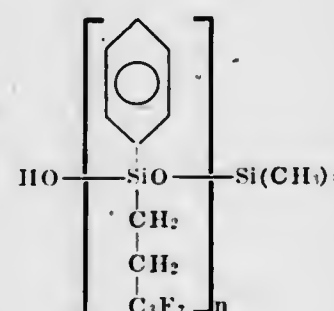
No Drawing. Filed Dec. 18, 1968, Ser. No. 784,876

Int. Cl. C08f 11/04

U.S. Cl. 260—46.5

6 Claims

Linear organosiloxane polymers containing fluorinated alkyl substituents, for example



are disclosed.

The polymers are useful as lubricants.

3,575,922

SILICON-, NITROGEN- AND OXYGEN-CONTAINING HIGH TEMPERATURE RESISTANT POLYMERS AND PROCESS

Walter Fink, Zurich, Switzerland, assignor to Monsanto Company, St. Louis, Mo.

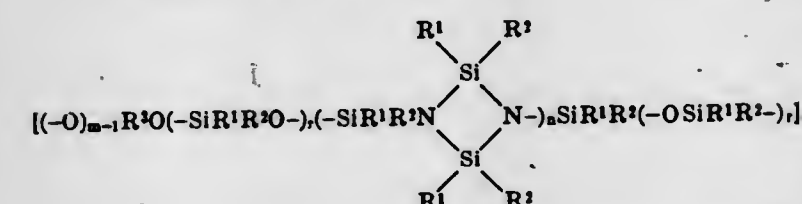
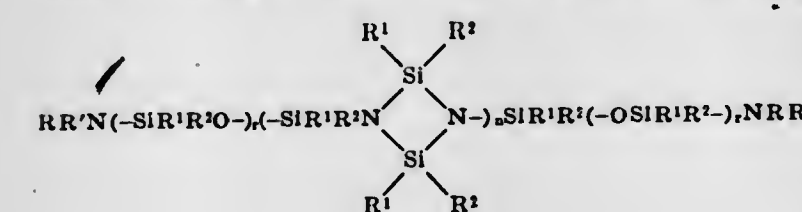
No Drawing. Continuation-in-part of abandoned application Ser. No. 680,981, Nov. 6, 1967, which is a continuation-in-part of abandoned application Ser. No. 595,033, Nov. 17, 1966. This application June 27, 1969, Ser. No. 837,339

Int. Cl. C08f 11/04

U.S. Cl. 260—46.5

22 Claims

Compounds of the formula

made by reacting a compound $\text{R}^2(\text{OH})_m$ with a compound

3,575,923

AQUEOUS PROCESS FOR THE PREPARATION OF POLYIMIDE RESINS

Robert T. Jones, Pelham, Mass., assignor to Monsanto Company, St. Louis, Mo.

No Drawing. Filed Oct. 11, 1968, Ser. No. 767,001

Int. Cl. C08g 20/32

U.S. Cl. 260—47

13 Claims

Disclosed herein is an aqueous process for the preparation of polyimide resins which process comprises reacting in an aqueous medium:

- (1) benzophenone tetracarboxylic dianhydride or benzophenone tetracarboxylic acid and
- (2) a water soluble polyamine having at least two primary amino groups per molecule

at temperatures of at least 60° C. for a time sufficient to form recurring imide units in the polymer.

3,575,924

CROSS-LINKED POLYIMIDES

Michel Bargain, Lyon, France, assignor to Rhone-Poulenc S.A., Paris, France

No Drawing. Filed July 8, 1968, Ser. No. 743,010

Claims priority, application France, July 12, 1967, 114,135

Int. Cl. C08g 20/32

U.S. Cl. 260—47

4 Claims

The invention provides novel cross-linked polyimides made by reacting a dianhydride with a molar excess of diamine, reacting the product with an unsaturated anhydride to produce an unsaturated polyamide, and heating the latter to produce the cross-linked polyimide.

3,575,925

PHOTOSENSITIVE COATING SYSTEMS

Martin Skoultchi, Somerset, N.J., assignor to National Starch and Chemical Corporation, New York, N.Y.

No Drawing. Filed June 17, 1968, Ser. No. 737,281

Int. Cl. C08f 15/18, 37/06

U.S. Cl. 260—47

7 Claims

Ethylenically unsaturated derivatives of substituted benzoic acids, phenols and naphthoic acids which are

prepared by means of a method involving reacting the substituted acid or phenol with an ethylenically unsaturated reagent such as glycidyl acrylate and glycidyl methacrylate. The resulting monomers may, thereafter, be homo- or copolymerized with a wide variety of conventional ethylenically unsaturated, i.e. vinyl, monomers. As a result of the presence of such monomers, the resulting homo- and copolymers are sensitive to external stimuli such as ultra-violet and visible light and will readily cross-link upon exposure to such stimuli. Organic solvent solutions or aqueous emulsions of these copolymers may be deposited upon solid substrates thereby providing photosensitive coating systems which are suitable for use in the lithographic and chemical milling fields.

3,575,926

PROCESS FOR CURING POLYEPOXIDES WITH AN ALIPHATIC POLYAMINE IN THE PRESENCE OF A N-(AMINOALKYL)PIPERAZINE DICYANDIAMIDE AND AN IMIDAZOLE

James Donald Joyce, North Plainfield, and Lawrence Charles Reilly, Clark, N.J., assignors to Shell Oil Company, New York, N.Y.

No Drawing. Filed Oct. 14, 1968, Ser. No. 768,615

Int. Cl. C08g 30/14

U.S. Cl. 260—47

9 Claims

A process for room temperature curing polyepoxides, such as glycidyl polyethers of polyhydric phenols is disclosed. This process comprises mixing and reacting a polyepoxide with an aliphatic polyamine in the presence of an N-(amino alkyl)piperazine, dicyandiamide and an imidazole. Use of the process for preparing adhesive compositions is also disclosed.

3,575,927

BROMINATED POLYESTERS

Winston J. Jackson, Jr., and John R. Caldwell, Kingsport, Tenn., assignors to Eastman Kodak Company, Rochester, N.Y.

No Drawing. Continuation-in-part of application Ser. No. 686,740, Nov. 29, 1967. This application June 27, 1969, Ser. No. 837,323

Int. Cl. C08g 17/14

U.S. Cl. 260—47

17 Claims

Polyesters having improved resistance to burning prepared by contacting a solution of the polyester with a brominating agent in the presence of a chlorinating agent, the molar ratio of bromine atoms to chlorine atoms being greater than 1:1 whereby the polyester is halogenated substantially uniformly throughout.

3,575,928

HIGH MOLECULAR WEIGHT LINEAR AROMATIC POLYESTER AMIDES

Gunter Lenz and Heinrich Krimm, Krefeld-Bockum, and Hermann Schnell, Krefeld-Uerdingen, Germany, assignors to Farbenfabriken Bayer Aktiengesellschaft, Leverkusen, Germany

No Drawing. Filed Aug. 15, 1969, Ser. No. 850,645

Claims priority, application Germany, Aug. 24, 1968, P 17 95 224.8

Int. Cl. C08g 20/30

U.S. Cl. 260—47

8 Claims

High molecular weight linear aromatic polyester amides obtained by polycondensation of polynuclear aromatic aminophenols, the aromatic nuclei of which are linked together by alkylene or cycloalkylene radical or by oxygen or sulfur, with aromatic dicarboxylic acid derivatives, the polyester amides being soluble in numerous organic solvents.

3,575,929

ACETYLENE-QUATERNARY AMMONIUM COMPOSITIONS

Lloyd W. Jones, Tulsa, Okla., assignor to Pan American Petroleum Corporation, Tulsa, Okla.

No Drawing. Filed Dec. 31, 1964, Ser. No. 422,528

Int. Cl. C07c 87/30

U.S. Cl. 260—567.6

3 Claims

Acetylene or derivatives thereof are contacted with quaternary ammonium compounds to produce compositions of matter having biocidal activity.

3,575,930

POLYOXYMETHYLENE GLYCOL POLYMERS

Kornelius Dinbergs, North Royalton, Ohio, assignor to The B. F. Goodrich Company, New York, N.Y.

No Drawing. Continuation-in-part of application Ser. No. 517,126, Dec. 28, 1965. This application Dec. 12, 1968, Ser. No. 783,416

Int. Cl. C08g 22/14

U.S. Cl. 260—67

6 Claims

Low molecular weight polyoxymethylene glycols including low molecular weight paraformaldehyde are reacted with excess organic diisocyanate in solution to form isocyanate terminated materials. The products are moldable, have good tensile properties and storage life, and they can be converted to polyurethane materials by reaction with diols or amines.

3,575,931

POLYETHYLENE TEREPHTHALATE MOLDING COMPOSITIONS CONTAINING DISPERSIBLE NUCLEATING AGENTS

Norman Sherman, Succasunna, N.J., assignor to Allied Chemical Corporation, New York, N.Y.

No Drawing. Continuation of application Ser. No. 825,123, May 6, 1969. This application Apr. 6, 1970, Ser. No. 23,098

Int. Cl. C08g 17/06

U.S. Cl. 260—75

9 Claims

Polyethylene terephthalate containing dispersible nucleating agents which are solids up to 140° C. and which melt below 225° C. such as metallic stearates, chlorides and highly polar organic compounds can be injection molded. Shaped articles have improved impact resistance.

3,575,932

OXIDIZED ASPHALT RESINS AS MONOMERS FOR THE PRODUCTION OF POLYESTERS

John A. Hedge, Wilmington, Del., and Charles E. Scott, Yardley, Pa., assignors to Sun Oil Company, Philadelphia, Pa.

No Drawing. Filed Jan. 25, 1968, Ser. No. 700,355

Int. Cl. C08g 17/04

U.S. Cl. 260—75

12 Claims

A crosslinked polyester is prepared by mixing and curing in the presence of an acid catalyst a composition of a polyol and an oxidized C₃-C₁₀ hydrocarbon-soluble fraction of asphalt, said fraction containing a plurality of carboxyl groups per molecule, and possibly sulfonic acid groups.

3,575,933

PROCESS FOR PREPARING BENZAMIDE POLYMERS

Erhard F. Hoegger, John R. Schaeffgen, and Curtis W. Stephens, Wilmington, Del., assignors to E. I. du Pont de Nemours and Company, Wilmington, Del.

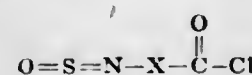
No Drawing. Filed Dec. 28, 1967, Ser. No. 694,041

Int. Cl. C08g 20/20

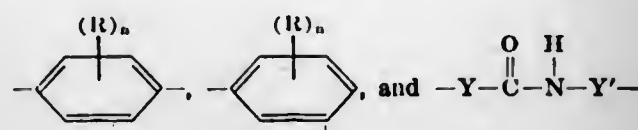
U.S. Cl. 260—78

15 Claims

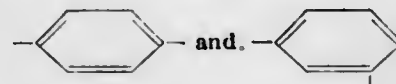
A process preparing benzamide polymers by reacting monomeric aromatic thionylamines of the formula:



wherein X is selected from the group consisting of:



wherein R is a monovalent radical which is inert in the polymerization reaction, *n* is a cardinal number from 0 to 4 and, Y and Y' are individually selected from the group consisting of:



Both homopolymer and copolymer preparation is described, including suitable solvents useful for polymerization and/or for forming shaped articles of the polymer. Suitable bases, added to the reaction medium, promote the formation of high viscosity polymer.

3,575,934

HIGH MOLECULAR WEIGHT AROMATIC POLYAMIDES FROM DIAMINES CONTAINING THE BENZOTRIAZOLE NUCLEUS

Friedrich-Karl Rosendahl, Leverkusen, Heinrich Gold, Cologne-Stammheim, and Otto Bayer, Burscheid, Germany, assignors to Farbenfabriken Bayer Aktiengesellschaft, Leverkusen, Germany

No Drawing. Filed Apr. 15, 1968, Ser. No. 721,176

Claims priority, application Germany, Apr. 24, 1967, F 52,227

Int. Cl. C08g 20/20

U.S. Cl. 260—78

2 Claims

The invention relates to high molecular weight aromatic polyamides having high melting points and being soluble in polar organic solvents, having recurring structural units containing N-2-phenylbenzotriazole ring systems, and to a process for their production by condensation of aromatic dicarboxylic acid dihalides with aromatic diamines containing said N-2-phenylbenzotriazole ring systems.

3,575,935

POLYAMIDE MOLDING PLASTICS

Edward U. Elam, Kingsport, Tenn., assignor to Eastman Kodak Company, Rochester, N.Y.

No Drawing. Filed Aug. 8, 1968, Ser. No. 751,039

Int. Cl. C08g 20/20

U.S. Cl. 260—78

4 Claims

Polyamides useful as molding plastics are derived from (A) at least one aromatic or alicyclic dicarboxylic acid and (B) 4,4-dimethyl-1,7-heptanediamine and/or 4-methyl-4-ethyl-1,7-heptanediamine.

3,575,936

CHEMICAL AND HEAT CONVERSION OF POLYAMIDE-ACIDS TO POLYIMIDES

Frank J. Dinan, Eggertsville, N.Y., assignor to E. I. du Pont de Nemours and Company, Wilmington, Del.

No Drawing. Continuation of application Ser. No. 537,005, Mar. 24, 1966. This application Feb. 10, 1969, Ser. No. 800,355

Int. Cl. C08g 20/32

U.S. Cl. 260—78

17 Claims

The chemical and heat conversion of a polyamide-acid to the corresponding polyimide, using as the chemical converting agent an N-acyl azole compound, having a 5-membered heterocyclic ring containing 2 through 4 nitrogen atoms and two double bonds.

3,575,937

IONIC POLYMERIZATION OF LACTAMS WITH A DERIVATIVE OF A CARBOXYLIC ESTER OF A KETOXIME AS PROMOTER

Johan A. Bigot, Beek, Limburg, Johannes van Mourik, Geleen, and Johannes van Beveren, Sittard, Netherlands, assignors to Stamicarbon N.V., Heerlen, Netherlands

No Drawing. Filed July 24, 1967, Ser. No. 655,270

Claims priority, application Netherlands, Aug. 4, 1966, 6610959

Int. Cl. C08g 20/10

U.S. Cl. 260—78

5 Claims

The use of carboxylic esters of ketoximes, in which an acyl radical has been substituted in the molecule for one of the hydrocarbon radicals of the ketoxime, as promoters, used in conjunction with catalysts, in the ionic polymerization of lactams, is disclosed. The use of such promoters permits rapid polymerization with high yields of amide polymers, which are useful in the production of molded products.

3,575,938

ANIONIC LACTAM CATALYST SYSTEM

Paul A. Tierney, Ballwin, Mo., assignor to Monsanto Company, St. Louis, Mo.

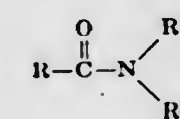
No Drawing. Continuation-in-part of application Ser. No. 565,076, July 14, 1966. This application Jan. 8, 1969, Ser. No. 789,946

Int. Cl. C08g 20/12

U.S. Cl. 260—78

9 Claims

In the base-catalyzed substantially anhydrous anionic lactam polymerization, the improvement which comprises dissolving the metal lactam catalyst in an N,N-disubstituted amide of the formula



where R is hydrogen or any monovalent hydrocarbon radical, R₁ and R₂ can be any monovalent hydrocarbon radical and where any two of the R's can be joined together to form a heterocyclic ring, prior to adding said metal lactam catalyst to the monomeric lactam to be polymerized. Also described is a solution of a metal lactam in the N,N-disubstituted amides described above as well as a process for preparing the solution comprising reacting the metal or metal compound with a lactam in the presence of the N,N-disubstituted amide.

3,575,939

STIFF, WORKABLE POLYAMIDES BY BLENDING WITH CYANURIC ACID

Rajindar K. Kochhar, Overland Park, Kans., Harry D. Ansporn, Sewickley, Pa., and Bert H. Clappitt, Overland Park, Kans., assignors to Gulf Research & Development Company, Pittsburgh, Pa.

No Drawing. Filed June 4, 1968, Ser. No. 734,245

Int. Cl. C08g 20/38

U.S. Cl. 260—78

3 Claims

Several polymers of nylon have lower melt viscosity and higher stiffness values with no appreciable sacrifice in other properties when blended with small amounts of cyanuric acid.

3,575,940

FLUOROCARBON COMPOUNDS AND POLYMERS THEREOF

Atsuo Katsushima, Fuse-shi, Iwao Hisamoto, Suita-shi, and Shoshin Fukui, Takahisa Kato, and Masayuki Nagai, Osaka-fu, Japan, assignors to Dalkin Kogyo Kabushiki Kaisha, Kita-ku, Osaka-shi, Japan

No Drawing. Continuation-in-part of application Ser. No. 515,450, Dec. 21, 1965. This application Jan. 4, 1968, Ser. No. 695,549

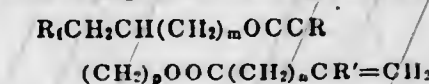
Claims priority, application Japan, Dec. 30, 1964, 40/63, 40/65, 40/66; Nov. 1, 1965, 40/67, 123

Int. Cl. C08f 3/62, 15/00

U.S. Cl. 260—78.4

7 Claims

Fluorocarbon compounds having the formula:



wherein R₁ is a perfluoroalkyl group having 3 to 21 carbon atoms, R is an alkyl group having 1 to 18 carbon atoms, R' is one member of the group consisting of hydrogen and methyl group, *m* is an integer of from 0 to 10, *p* is an integer of from 0 to 10 when *m* is 0 and *p* is 0 when *m* is 1 to 10, and *n* is an integer of from 0 to 10, and polymers derived therefrom.

3,575,941

ULTRASTABLE POLYMERS OF BBB TYPE, ARTICLES SUCH AS FIBERS MADE THEREFROM, AND HIGH TEMPERATURE PROCESS FOR FORMING SUCH POLYMERS AND ARTICLES

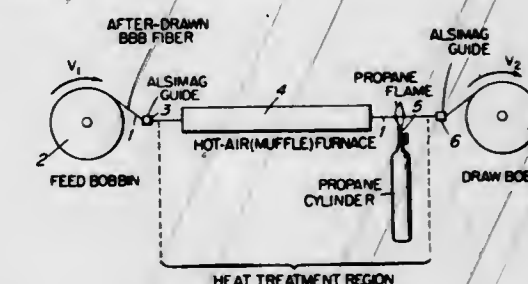
Jay M. Steinberg, Plainfield, N.J., assignor to Celanese Corporation, New York, N.Y.

Original application Nov. 7, 1967, Ser. No. 681,136, now Patent No. 3,523,151, dated Aug. 4, 1970. Divided and this application Aug. 18, 1969, Ser. No. 850,889

Int. Cl. C08g 33/02, 53/28

U.S. Cl. 260—78.4

2 Claims



Plastic articles of particularly high thermal stability, such as fibers or other extruded shapes, are made from "BBB" type polymers, i.e., polymers of the polyarylene-benzimidazole type, or more particularly of the poly-bisbenzimidazobenzophenanthroline type, by heat treatment of sufficiently oriented polymer at an ultra-high temperature between about 750° and 1500° C. following preheating at an intermediate temperature in the 500° to 700° C. range. As a result of such a high-temperature treatment a new kind of polymer structure is obtained which is attributed to the splitting out of the carbonyl groups from the BBB polymer molecule.

3,575,942

METHOD OF RECOVERING A POLYMERIC PRODUCT

C. Michael Fontana, Washington, W. Va., assignor to Borg-Warner Corporation, Chicago, Ill.

No Drawing. Filed July 25, 1968, Ser. No. 747,431

Int. Cl. C08f 1/88, 19/00

U.S. Cl. 260—78.5

4 Claims

A method of recovering and purifying polymeric products comprising heating a polymer reaction product in

the presence of sufficient water to form at least a partial solution of the polymer in water and cooling to effect a phase separation into a lower liquid phase containing concentrated polymer and an upper liquid phase containing reaction product impurities in water. The method is particularly adapted to the separation and purification of copolymers of maleic anhydride and derivatives thereof copolymerized with given conjugated dienes.

3,575,943

PROCESS FOR THE PREPARATION OF ACRYLONITRILE COPOLYMERS

Jozef L. M. van der Loos, Geleen, Johannes H. Ottenheym, Sittard, Franciscus A. Busschers, Geleen, and Peter J. M. W. Claassen, Amstenrade, Netherlands, assignors to Stamicarbon N.V., Heerlen, Netherlands
No Drawing. Filed June 25, 1969, Ser. No. 836,577
Claims priority, application Netherlands, June 25, 1968, 6808960

Int. Cl. C08f 15/36, 15/38, 15/40

U.S. Cl. 260—78.5

7 Claims

Copolymers having improved dyeing characteristics are prepared by copolymerizing acrylonitrile with the α -methylene glutaric acid, alone or in combination with the monohydrocarbyl ester thereof or with the ester alone in such amounts that the resulting copolymer comprises 0.1–10 percent by weight of said acid or ester, or combination thereof, and at least 35 percent by weight acrylonitrile.

3,575,944

PROCESS OF IMPROVING THE BASIC DYE ACCEPTANCE OF ACRYLONITRILE-POLYMER CONTAINING FIBERS BY USING AN ALKARYL POLYETHOXY PHOSPHATE ESTER

Ernest F. Stroh, Decatur, Ala., assignor to Monsanto Company, St. Louis, Mo.

No Drawing. Filed Dec. 27, 1966, Ser. No. 604,550

Int. Cl. C08f 45/00

U.S. Cl. 260—85.5

2 Claims

A process of improving the basic dye acceptance of acrylonitrile-polymer containing fibers by mixing, prior to extrusion into said acrylonitrile polymer, from about 0.5 to about 10%, based on the weight of the polymer, of an alkaryl polyethoxy phosphate ester.

3,575,945

PROCESS FOR THE POLYMERIZATION OF VINYL COMPOUNDS

Aldo Cantoni and Moshe Kreisel, Haifa, and Moshe Bar Guri, Kfar Hassidim, Israel, assignors to Electrochemical Industries (Frutarom) Ltd., Haifa, Israel
No Drawing. Filed Apr. 17, 1968, Ser. No. 721,934
Claims priority, application Israel, Dec. 14, 1967, 29,131

Int. Cl. C08f 1/11, 1/60, 3/30

U.S. Cl. 260—92.8

8 Claims

A process for the suspension polymerization of vinyl derivatives, especially vinyl chloride, in which dialkyl or dialkenyl peroxydicarbonates used as polymerization initiators are produced in situ in the polymerization mixture in the presence of an alkali metal base by the interaction of hydrogen peroxide with an alkyl or alkenyl haloformate, which latter is used in a stoichiometric excess over the hydrogen peroxide of the order of 1.5 to 8 times, preferably 2 to 4 times. A conventional organic peroxide such as dilauroyl peroxide may be used in addition as a secondary polymerization initiator.

3,575,946

METHOD OF PREPARING SOLUBLE POLYMERS OF ETHYLENE GLYCOL

Richard Chromeczek, Miloslav Bohdanecky, Karel Kliment, Jaroslava Otoupalova, Vladimir Stoy, Miroslav Stol, and Zdenek Tuzar, Prague, Czechoslovakia, assignors to Ceskoslovenska akademie ved, Prague, Czechoslovakia

No Drawing. Filed May 17, 1967, Ser. No. 639,021

Claims priority, application Czechoslovakia, May 24, 1966, 3,489/66

Int. Cl. C08f 15/26

U.S. Cl. 260—86.1

8 Claims

Ethylene glycol monomethacrylate and monoacrylate contaminated with up to 50% of the corresponding bis-methacrylates or bisacrylates may be fully polymerized to solvent-soluble polymers in all solvent media capable of strongly swelling the cross-linked copolymer which would be formed if the same monomer mixture were polymerized in the absence of solvent.

3,575,947

CYCLIC OLEFIN CONVERSION

Donald L. Crain, Bartlesville, Okla., assignor to Phillips Petroleum Company

No Drawing. Continuation-in-part of application Ser. No. 517,932, Jan. 3, 1966. This application Nov. 21, 1968, Ser. No. 777,916

Int. Cl. C08f 7/02

U.S. Cl. 260—93.1

14 Claims

Cyclic olefinic hydrocarbons including mono- and polyenes are converted into polyunsaturated hydrocarbons of higher molecular weight by contacting the olefin with a catalyst active for the disproportionation of acyclic olefins having three or more carbon atoms into other olefins of both higher and lower molecular weight.

3,575,948

FORMING SMALL PARTICLES OF POLYPROPYLENE BY DIRECT POLYMERIZATION

Harry W. Blunt, Claymont, Del., assignor to Hercules Incorporated, Wilmington, Del.

No Drawing. Filed Mar. 29, 1968, Ser. No. 717,403

Int. Cl. C08f 1/56, 3/10

U.S. Cl. 260—93.7

5 Claims

Polypropylene particles of less than 15 μ are prepared by direct polymerization using a specially treated catalyst. The special catalyst treatment comprises preliminarily treating a trivalent titanium containing catalyst by polymerizing a small amount of ethylene, propylene, or butene-1 therewith at elevated temperature.

3,575,949

METHOD FOR IN-MOLD TUBE FORMATION

Frederick Harold Humphrey, Markham, Ontario, Canada, assignor to Polypump Curacao N.V., Willemstad, Curacao, Netherlands Antilles

Filed May 5, 1969, Ser. No. 821,829

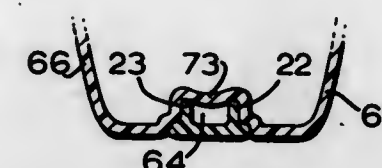
Int. Cl. B29c 17/07

U.S. Cl. 264—94

10 Claims

A method of incorporating into the wall of a blow-molded plastic container a tubular passage which can also include a pump means, a nozzle at the upper end, and a liquid intake aperture at the other end. An elongated channel-defining element is positioned against the inside

wall of a mold cavity and then the plastic container is blow-molded against it. The material forming the con-



tainer wall seals the channel to form a tube, and bonds itself to the material of the channel-defining element.

3,575,950

PROCESS FOR PREPARING POLYETHYLENE HAVING IMPROVED FILM FORMING PROPERTIES

Willard P. Gleason, Jesse R. Goza, Jr., and Jerald G. Park, Longview, Tex., assignors to Eastman Kodak Company, Rochester, N.Y.

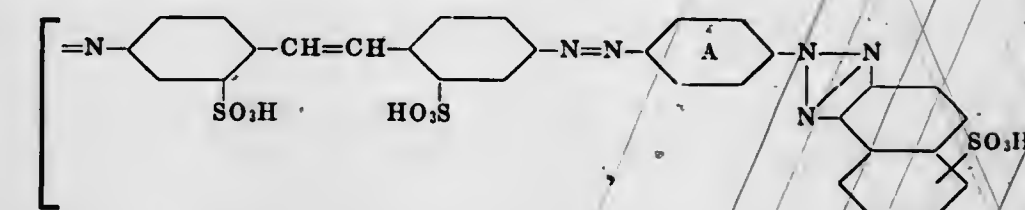
Filed Sept. 26, 1968, Ser. No. 762,851

Int. Cl. C08f 1/60, 3/04

U.S. Cl. 260—94.9

6 Claims

A three-stage process for preparing polyethylene employing at least one peroxide catalyst in each stage. The process produces a novel polyethylene having a density of about 0.922 to about 0.932 which finds particular util-



ity in forming polyethylene films having improved optical properties.

3,575,951

REACTION OF SINGLET OXYGEN WITH RAW MATERIALS FROM NAVAL STORES

Walter H. Schuller and Ray V. Lawrence, Lake City, Fla., assignors to the United States of America as represented by the Secretary of Agriculture

No Drawing. Filed Nov. 14, 1968, Ser. No. 777,549

Int. Cl. C01f 1/00

U.S. Cl. 260—97.5

9 Claims

Levopimaric acid transannular peroxide and a plurality of mixed peroxides were prepared by the reaction of singlet oxygen with levopimaric acid, pine gum, gum rosin, the sodium salt of pine gum, partially neutralized gum rosin, tall oil rosin, wood rosin, and other naval stores products.

3,575,952

TALL OIL RECOVERY

Charles W. Morris, Jacksonville, and Gerald S. Watkins, Apalachicola, Fla., assignors to SCM Corporation, Cleveland, Ohio

Filed Oct. 2, 1969, Ser. No. 863,774

Int. Cl. C09f 1/02

U.S. Cl. 260—97.7

13 Claims

A process for removing lignin salts from crude tall oil soap skimmings is disclosed. The soap skimmings are washed or extracted with an aqueous salt solution. In the preferred embodiment the salt solution is the aqueous alkalized "spent acid" from the crude tall oil acidulation reaction. This extraction reduces the lignin concentration in the lignin concentration in the soap skimming phase and thereby promotes a better yield and better quality of crude tall oil upon acidulation. A viscosity controlled phase separation technique is employed in separating the viscous soap skimmings from the less viscous aqueous washing liquors.

3,575,953

SULPHUR DYESTUFFS

Djavad Razavi, Paris, France, assignor to Ugine Kuhlmann, Paris, France
No Drawing. Filed May 15, 1968, Ser. No. 729,369
Claims priority, application France, May 17, 1967, 106,643

Int. Cl. C09b 49/06, 49/12

U.S. Cl. 260—128

1 Claim

A sulphur dyestuff which comprises treating a phthalocyanine which is free from amino groups, a dioxazine, an anthraquinone derivative or substituted or unsubstituted polycyclic aromatic hydrocarbon, in solution or suspension in sulphur chloride, with chlorosulphonic acid at a temperature between 90° C. and 200° C. inclusive. The dyestuffs are useful for the dyeing of cellulosic fibres.

3,575,954

AZO DYESTUFFS DERIVED FROM STILBENE AND CONTAINING A NAPHTHOTRIAZOLO GROUP

Marcel Georges Jirou and Vassili Urne, Rouen, France, assignors to Ugine Kuhlmann, Paris, France

No Drawing. Filed Mar. 21, 1968, Ser. No. 714,765

Claims priority, application France, Mar. 24, 1967, 100,185, Patent 1,523,475

Int. Cl. C09b 43/08; D06p 1/06, 3/60

U.S. Cl. 260—157

3 Claims

Azo dyestuffs of the formula:

wherein the benzene nucleus A is unsubstituted or substituted by one or more alkyl and/or alkoxy groups, and process for their preparation. These dyestuffs are particularly well suited for dyeing of cellulosic fibres and the shades obtained are distinguished by their good general fastness especially to water and washing.

3,575,955

REACTIVE AZO DYESTUFFS CONTAINING TRIAZINE, DIAZINE OR ALIPHATIC CARBOX-AMIDO GROUPS

Herbert Francis Andrew and Neville Jackson, Manchester, England, assignors to Imperial Chemical Industries Limited, London, England

No Drawing. Filed Mar. 14, 1966, Ser. No. 533,850

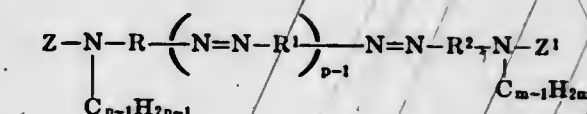
Claims priority, application Great Britain, Mar. 29, 1965, 13,259/65; Jan. 7, 1966, 825/66

Int. Cl. C09b 62/08, 62/24, 62/40

U.S. Cl. 260—153

7 Claims

Azo dyestuffs of the general formula



wherein R is a radical selected from the group consisting of phenylene, monosulphophenylene and disulphonaphthalene, R¹ is a radical selected from the group consisting of dimethyl-1,4-phenylene, monomethyl monomethoxy-1,4-phenylene and monosulpho-1,4-naphthylene, R² is a radical selected from the group consisting of monosulpho-1,4-naphthylene and 1,4-phenylene which may be substituted by up to two radicals selected from the group consisting of a lower alkyl, lower alkoxy, carboxylic acid, lower alkanoylamido and ureido, m, n and p each independently have a value of 1 or 2, Z and Z' are the

same or different cellulose-reactive substituents selected from the group consisting of mono- and di-chloro-s-triazine, mono- and dibromo-s-triazine, trichloropyrimidine, 5-cyano-dichloropyrimidine, 5-cyano-dibromopyrimidine, β -chloro-propionyl, chloroacetyl, 2,4-dichloroquinazoline-6- and 7-carbonyl, 2,3-dichloroquinazoline-5- and 6-carbonyl, 2,4-dichloropyrimidine-5-carbonyl and acrylyl. These dyestuffs are valuable for coloring cellulose textile materials and can be applied thereto by a dyeing or printing process. The azo dyestuff reacts with the cellulose to give colorings having very good fastness to light and to wet treatments.

3,575,956

2-SUBSTITUTED-BENZ-X-AZOL-6-YLAZO-AMINONAPHTHALENE COMPOUNDS
Nathan N. Crouse, Cincinnati, Ohio, assignor to Sterling Drug Inc., New York, N.Y.

No Drawing. Filed July 24, 1967, Ser. No. 655,339
Int. Cl. C09b 27/00, 29/36; D061 3/12
U.S. Cl. 260—157 18 Claims

2-benzoxazol-6-yl-2H-naphtho[1,2-d]triazoles, 2-benzothiazol-6-yl-2H-naphtho[1,2-d]triazoles and 2-benzimidazol-6-yl-2H-naphtho[1,2-d]triazoles, having attached at the 2-position of the benz-X-azol-6-yl ring thereof a substituent of from 8-18 carbon atoms and 4-8 conjugated double bonds, are optical whitening and brightening agents having particularly desirable shades of fluorescence.

3,575,957

METHOD FOR IMPROVING THE DRY STATE TINCTORIAL STRENGTH OF A WATER-SOLUBLE DYE

Walter R. Demler, Hamburg, Percy Perletz, Kenmore, and James R. Price, Amherst, N.Y., assignors to Allied Chemical Corporation, New York, N.Y.

No Drawing. Filed Aug. 21, 1967, Ser. No. 661,831
Int. Cl. C07c 107/60; C09b 29/38, 43/00
U.S. Cl. 260—163 15 Claims

The method involves intimately contacting a water soluble dye with an inert, water soluble, low boiling organic solvent and then evaporating the solvent. The treatment may be applied to dye which is in substantially dry, granular form and to dye in the form of an aqueous mixture. Dyes treated in this manner have greatly improved tinctorial strength in the dry state and therefore this process is particularly useful for dyes which are used to color dye mixes.

3,575,958

PREPARATION OF NUCLEOSIDE-5'-PHOSPHORAMIDATES

Noriko Nagasawa, Tokyo, Masaharu Yoshikawa, Kawasaki-shi, and Tetsuya Kato, Fujisawa-shi, Japan, assignors to Ajinomoto Co., Inc., Tokyo, Japan

No Drawing. Filed Apr. 16, 1968, Ser. No. 721,566
Claims priority, application Japan, Apr. 25, 1967, 42/26,446

Int. Cl. C07d 51/32, 51/54

U.S. Cl. 260—211.5 6 Claims
Nucleosides or 2',3'-O-protected nucleosides are readily converted to the corresponding dichlorophosphates by reaction with phosphorus oxychloride. The dichlorophosphates, when partly hydrolyzed to the monochlorophosphates, can be reacted with ammonia or amines at high yields to the ammonium or amine salts of the 5'-phosphoramidates in a solvent medium essentially consisting of trialkyl phosphates or tri-haloalkyl phosphates.

3,575,959

5'-SUBSTITUTED RIBOFURANOSYL NUCLEOSIDES

Tsung-Ying Shen, Westfield, and William V. Ruyle, Scotch Plains, N.J., and Thomas Nelson, Burlington, Ontario, Canada, assignors to Merck & Co., Inc., Rahway, N.J.

No Drawing. Continuation-in-part of abandoned application Ser. No. 659,046, Aug. 8, 1967. This application May 13, 1969, Ser. No. 824,271

Int. Cl. C07d 51/52, 51/54

U.S. Cl. 260—211.5 8 Claims

Novel (5-substituted-5-deoxyribofuranosyl)-purines and pyrimidines where the 5-substituent is acetylthio, thiocyanato, azido, alkylamino, or fluoro, are prepared by reaction of a (2,3-O-isopropylidene-5-O-tosylribofuranosyl)-purine or pyrimidine with an alkali metal thioacetate, thiocyanate, azide, alkylamino, or fluoride, respectively. The 5'-azido-group is then hydrogenated to a 5'-amino-group.

The (5-amino-5-deoxy-2,3-O-isopropylidene-ribofuranosyl) purine or pyrimidine is then reacted with an alkanoyl halide or anhydride, adamantoyl halide, ethyl chloroformate or potassium cyanate to produce the corresponding 5-alkanoylamino, adamantoylamido, N-carboethoxyamino, ureido, or cyanamido-derivative, respectively. The 5-cyanamido-derivative is further reacted with ammonia in an amine to give the corresponding 5-guanidino derivative. The purine derivatives may be substituted at the 2,6-positions of the purine nucleus and the pyrimidine derivatives (e.g. cytidine or uridine) may be substituted at the 5-position of the pyrimidine nucleus.

The (5-substituted-5-deoxyribofuranosyl)-purines and pyrimidines have antiviral activity against Herpes, Vaccinia and Adeno II viruses, and are also useful in vitro as nucleoside antimetabolites, and as nucleic acid biosynthesis inhibitors.

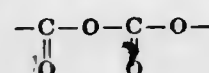
3,575,960

ESTERIFICATION OF CELLULOSE WITH CARBONIC CARBOXYLIC ANHYDRIDES

Giuliana C. Tesoro, Dobbs Ferry, N.Y., assignor to J. P. Stevens & Co., Inc., New York, N.Y.

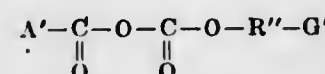
No Drawing. Filed July 17, 1967, Ser. No. 653,632
Int. Cl. C08b 3/20; D06m 13/20
U.S. Cl. 260—224 15 Claims

A process for esterification of cellulose wherein a cellulosic material is reacted under mild conditions and in the absence of a catalyst with mixed carbonic carboxylic anhydrides having the characteristic group

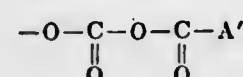


whereby a monovalent or divalent carbon acyl group is bonded to the cellulose by replacing active hydrogen, with consequent ester formation, and there is released as by-products an alcohol or glycol and carbon dioxide.

In addition, novel compounds of the carbonic carboxylic anhydride class which are useful in the formation of cellulose esters according to the above-mentioned process, and which are characterized by the formula



wherein A' is polyfluoroalkyl or polyfluoroalkoxyalkyl, R' is a lower alkylene group, and G' is selected from the group consisting of hydrogen and



3,575,961

POLYFLUOROALKYLAZIRIDINES AND THEIR PRODUCTION

Giuliana C. Tesoro, Dobbs Ferry, N.Y., and Richard Ring, Woodridge, N.J., assignors to J. P. Stevens & Co., Inc., New York, N.Y.

No Drawing. Filed Mar. 9, 1962, Ser. No. 178,572
Int. Cl. C07d 23/02, 23/06

U.S. Cl. 260—239 6 Claims

Fluorinated aziridine compounds are disclosed which are the addition or substitution products of the reaction of an ethyleneimine and fluorine-containing compound. One or two aziridine groups may be present in the compounds which are useful for the chemical modification of textile materials.

3,575,962

N'-SUBSTITUTED N-ARYLSULFONYL UREAS

Henri Dietrich, Arlesheim, Switzerland, assignor to Gelgy Chemical Corporation, Ardsley, N.Y.

No Drawing. Filed Sept. 13, 1967, Ser. No. 667,363
Int. Cl. C07d 41/08

U.S. Cl. 260—239 17 Claims

N-arylsulfonyl-1,2,4,5-tetrahydro-3H-3-benzazepine-3-carboxamides and pharmaceutically acceptable salts thereof with bases, which compounds have useful hypoglycaemic action, as well as starting materials for their production; therapeutic compositions containing these carboxamides or their pharmaceutically acceptable addition salts and processes of producing hypoglycaemic effects in mammals. An illustrative embodiment is N-(p-tolylsulfonyl)-1,2,4,5-tetrahydro-3H-3-benzazepine-3-carboxamide.

3,575,963

5,5a β ,13,13a β -TETRAHYDRO-5 β ,13 β -DIHYDROXY-8H,16H-7a,15a-(EPITRITHIO OR EPITETRA-THIO)-7H,15H-BISOXEPINO[3',4':4,5]PYRROLO[1,2-a:1',2'-d]PYRAZINE-7,15-DIONE, DIACETATE

Keith Chadwick Murdock and Robert Bruce Angier, Pearl River, N.Y., assignors to American Cyanamid Company, Stamford, Conn.

No Drawing. Continuation-in-part of abandoned application Ser. No. 747,429, July 25, 1968. This application Jan. 22, 1969, Ser. No. 793,163

Int. Cl. C07d 93/36, 93/00

U.S. Cl. 260—239.3 6 Claims

This disclosure describes 5,5a β ,13,13a β -tetrahydro-5 β ,13 β -dihydroxy-8H, 16H-7a,15a-(epitrithio or epitetra-thio)17H,15H-bisoxepino[3',4':4,5]pyrrolo[1,2-a:1',2'-d]pyrazine-7,15-dione, diacetate, new compounds useful as antiviral agents.

3,575,964

PRODUCTION OF LACTAMS

Edwin George Edward Hawkins, Lower Kingswood, Surrey, England, assignor to BP Chemicals (U.K.) Limited, London, England

No Drawing. Filed Dec. 9, 1968, Ser. No. 782,407
Claims priority, application Great Britain, Dec. 15, 1967, 42,696/67, 57,228/67; Aug. 15, 1968, 38,973/68

Int. Cl. C07d 41/06

U.S. Cl. 260—239.3 7 Claims

In the catalytic cleavage 1,1'-peroxydicyclohexylamine, to give caprolactam the majority of the cycloalkanone co-product is continuously removed by distillation from the mixture undergoing cleavage.

3,575,965

PROCESS FOR THE PREPARATION OF 11-CHLORO-8,12b-DIHYDRO-2,8-DIMETHYL-12b-PHENYL-4H-[1,3]OXAZINO[3,2-d][1,4]BENZODIAZEPINE-4,7(6H)-DIONE

Jacob Szmuszkovicz, Kalamazoo, Mich., assignor to The Upjohn Company, Kalamazoo, Mich.

No Drawing. Filed Oct. 20, 1969, Ser. No. 867,936
Int. Cl. C07d 87/54, 53/06

U.S. Cl. 260—239.3 3 Claims

A process for the preparation of 11-chloro-8,12b-dihydro-2,8-dimethyl-12b-phenyl-4H-[1,3]oxazino[3,2-d][1,4]benzodiazepine-4,7(6H)-dione. This compound is useful as a tranquilizer and sedative for animals, including mammals.

3,575,966

ANTHRAQUINONE DYESTUFFS

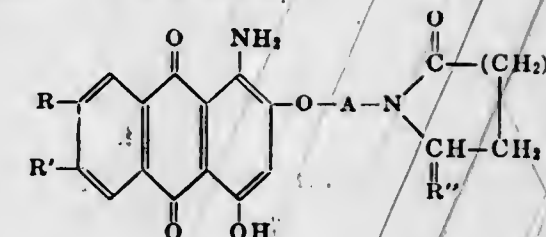
Rütger Neef, Leverkusen, and Gerhard Wolfrum, Opladen, Germany, assignors to Farbenfabriken Bayer Aktiengesellschaft, Leverkusen, Germany

No Drawing. Filed June 20, 1968, Ser. No. 738,353
Claims priority, application Germany, June 29, 1967, F 52,821

Int. Cl. C07d 41/06; C07c 49/68

U.S. Cl. 260—239.3 1 Claim

Dyestuffs of the formula:



in which R and R' are hydrogen, chlorine or fluorine; R'' is hydrogen or lower alkyl; A is a straight-chain or branched alkylene group with 2 to 6 carbon atoms which may be interrupted by oxygen and/or sulfur atoms; and n is an integer of 1 to 3; and their use in the dyeing and printing of synthetic fiber materials, e.g. polyester, polyamide, cellulose esters, are disclosed. The dyes give good yields and the dyeings exhibit good texture, fastness to light, thermofixing, washing, rubbing and ironing.

3,575,967

17 α -AMINOALKYL- AND AMINOALKYNYL-19-NORSTEROIDAL 3,5-DIENES

Kurt W. Ledig, Philadelphia, Donald W. Oliver, West Chester, and Gerhard R. Wendt, Havertown, Pa., assignors to American Home Products Corporation, New York, N.Y.

No Drawing. Filed Feb. 5, 1969, Ser. No. 796,909
Int. Cl. C07c 173/10

U.S. Cl. 260—239.5 39 Claims

13-alkyl-17 α -aminoalkynyl- and 17 α -aminoalkylgon-3,5-dienes (I) are useful biocidally as amebicides, fungicides and trichomonocides. Compounds (I) are prepared by (a) dehydrating a corresponding 17 α -aminoalkynyl- or -aminoalkyl 19-norsteroidal 4-en-3-ol (II); (b) aminoalkylating a corresponding 17 α -alkynyl 19-norsteroidal 4-en-3-ol (III) and then dehydrating; or (c) aminoalkylating a corresponding 17 α -alkynyl 19-norsteroidal 3,5-diene (IV).

3,575,968

DITHIOLE COMPOUNDS AND PREPARATION

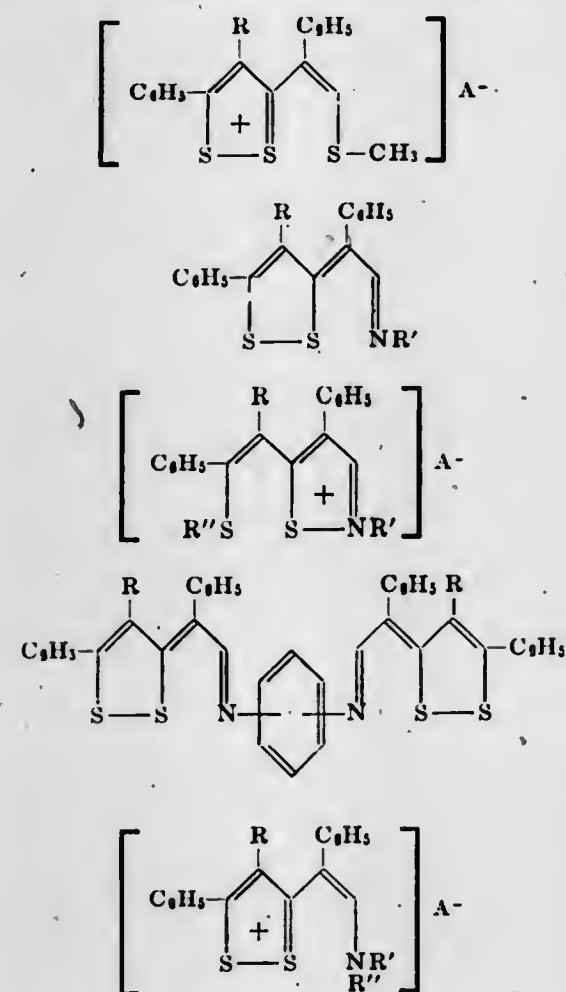
Erwin Klingsberg, Mountainside, Union County, N.J., assignor to American Cyanamid Company, Stamford, Conn.

No Drawing. Filed Mar. 12, 1968, Ser. No. 712,384
Int. Cl. C07d 7/00; C09b 49/00

U.S. Cl. 260—240 18 Claims

1,2-dithiole or 1,2-dithiolium compounds, useful as dyes or herbicides, of the following formulas where R is hydro-

gen or phenyl; R' is alkyl, cycloalkyl, aralkyl, aryl, heteroaryl; R'' is alkyl; and A⁻ is an anion such as halide:



3,575,969
DESACETOXYCEPHALOSPORIN ANTIBIOTICS
Robert B. Morin and Billy G. Jackson, Indianapolis, Ind., assignors to Eli Lilly and Company, Indianapolis, Ind.
No Drawing. Continuation-in-part of application Ser. No. 579,222, Sept. 14, 1966, which is a continuation-in-part of application Ser. No. 213,588, July 31, 1962. This application Mar. 4, 1968, Ser. No. 709,927
The portion of the term of the patent subsequent to Apr. 21, 1987, has been disclaimed
Int. Cl. C07d 99/24

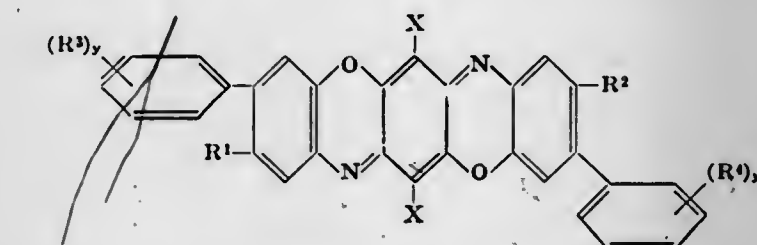
U.S. Cl. 260—243 3 Claims
Desacetoxycephalosporin antibiotics containing thienyl or furyl rings in the 7-acylamido moiety of the molecule, e.g., 7-(α -amino- α -thienylacetamido)-3-methyl- Δ^3 -cephem-4-carboxylic acid, and pharmaceutically acceptable salts thereof.

3,575,970
PROCESS FOR PREPARATION OF 7-AMINO-CEPHALOSPORANIC ACID COMPOUNDS
Helmut Wilhelm Otto Weissenburger, Rijswijk, and Marcelus Gijbertus van der Hoeven, Den Haag, The Netherlands, assignors to Koninklijke Nederlandsche Gist-en Spiritusfabriek N.V., Delft, The Netherlands
No Drawing. Continuation-in-part of application Ser. No. 681,002, Nov. 6, 1967, which is a continuation-in-part of application Ser. No. 622,907, Mar. 14, 1967. This application Oct. 20, 1969, Ser. No. 867,888
Claims priority, application Netherlands, Aug. 7, 1967, 6710835; Oct. 11, 1967, 6713809
Int. Cl. C07d 99/24

U.S. Cl. 260—243 15 Claims
A novel process for the preparation of a compound selected from the group consisting of 7-amino-cephalosporanic acid and its derivatives in high yields by chemical removal of the acyl radical of the corresponding 7-acylamino-cephalosporanic compounds which are useful intermediates.

3,575,971
DIOXAZINE COMPOUNDS USEFUL AS STABILIZERS AND PIGMENTS IN PLASTIC MATERIALS
Raymond C. Harris, Gordon C. Newland, and James M. Straley, Kingsport, Tenn., assignors to Eastman Kodak Company, Rochester, N.Y.
No Drawing. Filed Feb. 28, 1968, Ser. No. 708,777
Int. Cl. C07d 99/02

U.S. Cl. 260—246 5 Claims
Compounds of the dioxazine series, useful as stabilizers and pigments for plastic materials, which have the following general structure



wherein X is halogen; R¹ and R² independently are hydrogen, C₁-C₅ alkyl, or C₁-C₅ alkoxy; R³ and R⁴ independently are hydrogen, halogen, hydroxy, C₁-C₅ alkyl or C₁-C₅ alkoxy; at least one of R¹ and R³ and at least one of R² and R⁴ being C₁-C₅ alkoxy; and y is 0-5.

3,575,972
MORPHOLINO CARBONYL GLYOXYLONITRILE OXIMINO DIALKYL CARBAMATES
Harold A. Kaufman, Piscataway, N.J., assignor to Mobil Oil Corporation
No Drawing. Original application Dec. 5, 1966, Ser. No. 598,889, now Patent No. 3,843,246, dated Dec. 9, 1969. Divided and this application Apr. 17, 1969, Ser. No. 817,138
Int. Cl. C07d 87/44

U.S. Cl. 260—247.2 2 Claims
Heterocyclic glyoxylonitrile oximino carbamates are useful to control plant growth, particularly the pre-emergence of undesirable grasses. They may be combined with herbicidal carriers and applied to the soil, seeds, seedlings, and to plants.

3,575,973
COMPOUNDS CONTAINING A DINITROFLUOROMETHYL GROUP
Milton B. Frankel, Tarzana, Calif., assignor to North American Rockwell Corporation
No Drawing. Filed June 27, 1966, Ser. No. 563,019
Int. Cl. C07d 55/36; C07c 79/46, 111/00
U.S. Cl. 260—248 1 Claim
New explosive compounds having the group $-(NO_2)_2F$ including nitramines and esters formed from the reactions respectively of $FC(NO_2)_2CH_2OH$ with (1) amines followed by nitration to obtain nitramines and (2) aromatic and heterocyclic acid chlorides to obtain esters.

3,575,974
7-HYDROXYLAMINO-1,3,5-TRIAZAADAMANTANE AND ITS PRODUCTION
Edward B. Hodge, % Commercial Solvents Corp., Terre Haute, Ind., and Charles D. Hurd, 2649 Lawndale Ave., Evanston, Ill. 47531
No Drawing. Filed Nov. 12, 1968, Ser. No. 775,105
Int. Cl. C07d 57/20

U.S. Cl. 260—248 3 Claims
7-hydroxylamino-1,3,5-triazaadamantane and process for production thereof by reacting tris(hydroxymethyl)nitromethane with ammonia to produce the nitroadamantane derivative, and reducing same in the presence of

a palladium catalyst to produce the hydroxylamino derivative. The compounds have utility as bacteriostats and fungistats.

3,575,975
PROCESS FOR THE PREPARATION OF 3-AMINOPYRAZINOYLUREAS
Edward J. Cragoe, Jr., Lansdale, and Kenneth L. Shepard, Ambler, Pa., assignors to Merck & Co., Inc., Rahway, N.J.
No Drawing. Filed July 25, 1968, Ser. No. 747,462
Int. Cl. C07d 51/76

U.S. Cl. 260—250 13 Claims
A process is described for the preparation of pyrazinoylureas which comprises the hydrolysis of pyrazinoylcyanamides. The products are diuretic and/or saluretic agents.

3,575,976
3-AMINO-1,2,8,9-TETRAAZAPHENALENES
Karl J. Doebe, Ossining, and John E. Francis, Pleasantville, N.Y., assignors to Geigy Chemical Corporation, Ardsley, N.Y.
No Drawing. Continuation-in-part of application Ser. No. 718,227, Apr. 2, 1968, which is a continuation-in-part of applications Ser. No. 445,762, Apr. 5, 1965, Ser. No. 539,303, Apr. 1, 1966, and Ser. No. 583,980, Oct. 3, 1966, said Ser. No. 539,303 being a continuation-in-part of application Ser. No. 445,762, and Ser. No. 583,980 being a continuation-in-part of applications Ser. No. 539,303, and Ser. No. 445,767. This application Mar. 24, 1969, Ser. No. 810,007
Int. Cl. C07d 51/02

U.S. Cl. 260—250 10 Claims
3-amino-1,2,8,9-tetraazaphenalenes optionally substituted in the 4, 5, 6, 7 and/or 9 positions and their salts are cardiovascular agents and can be prepared from the corresponding 1,2,8,9-tetraazaphenalenes. Representative embodiments are 3-amino-1,2,8,9-tetraazaphenylene and 3-benzylamino-9-phenyl-1,2,8,9-tetraazaphenylene.

3,575,977
7-ALKYL-2,5-DISUBSTITUTED-7H-PYRROLO[2,3-d]PYRIMIDINES-6-CARBONITRILES
Dong H. Kim, Wayne, and Arthur A. Santilli, Havertown, Pa., assignors to American Home Products Corporation, New York, N.Y.
No Drawing. Filed Aug. 14, 1968, Ser. No. 752,486
Int. Cl. C07d 57/14

U.S. Cl. 260—256.4 4 Claims
The disclosure is directed to 7-alkyl-2,5,6-trisubstituted-7H-pyrrolo[2,3-d]pyrimidines and to the 4-[(cyano-methyl)alkylamino]-2-substituted-5-pyrimidine carboxylic acid esters which are intermediates in their production. The compounds have central nervous system activity as depressants.

3,575,978
INDUSTRIAL PRODUCTION OF O,S-DIALKOXY-CARBONYLTHIAMINE COMPOUNDS
Kanji Tokuyama, Osaka-shi, Takashi Maeda, Kitakatsuragi-gun, and Kenji Ikawa, Osaka-shi, Japan, assignors to Shionogi & Co., Ltd., Osaka, Japan
No Drawing. Filed May 16, 1969, Ser. No. 825,435
Int. Cl. C07d 51/42

U.S. Cl. 260—256.5 20 Claims
An S-alkali metal salt of thiol type thiamine is reacted with each about 1.0 to about 1.2 mol equivalent of lower alkyl chlorocarbonate, alkali hydroxide and lower alkyl chlorocarbonate in that order respectively in an aqueous medium containing from 0 to about 50 volume/volume percent of halogeno-hydrocarbon of not more than 10 carbon atoms to give high purity of O,S-dialkoxythiamine compounds economically and industrially.

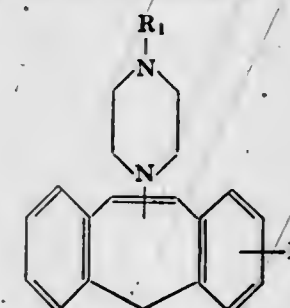
885 O.G.—24

3,575,979
7-ALKYL-5-METHOXY-7H-PYRROLO[2,3-d]PYRIMIDINE-6-CARBOXAMIDES AND RELATED COMPOUNDS
Dong H. Kim, Delaware, and Arthur A. Santilli, Havertown, Pa., assignors to American Home Products Corporation, New York, N.Y.
No Drawing. Continuation-in-part of application Ser. No. 752,486, Aug. 14, 1968. This application June 2, 1969, Ser. No. 829,774
Int. Cl. C07d 51/14

U.S. Cl. 260—256.4 2 Claims
The disclosure is directed to 7-alkyl-2,5,6-trisubstituted-7H-pyrrolo[2,3-d]pyrimidines and to the 4-[(cyano-methyl)alkylamino]-2-substituted-5-pyrimidine carboxylic acid esters which are intermediates in their production. The compounds have central nervous system activity as depressants.

3,575,980
5H-DIBENZO(a,d)CYCLOHEPTEN-10-YL-PIPERAZINE DERIVATIVES
Michele Mastursi, Naples, Sabino Lembo, Pozzuoli, and Rene Viterbo, Naples, Italy, assignors to Richardson-Merrell S.p.A., Naples, Italy
No Drawing. Filed Mar. 25, 1968, Ser. No. 715,536
Int. Cl. C07d 51/70

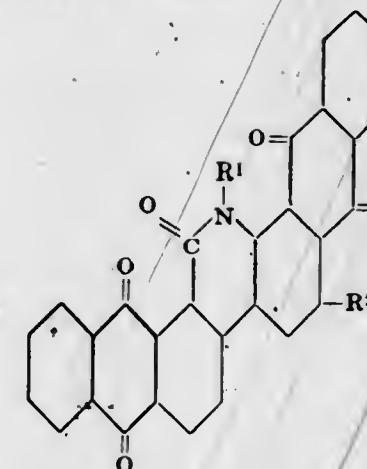
U.S. Cl. 260—268 10 Claims
New en-amines of the formula:



in which R may be hydrogen, halogen, or lower alkyl, and R₁ represents a nitrogen-containing substituent, preferably a carboxamide or a thiocarbamide. These new compounds are useful because of their pharmacological activities which include muscle relaxing, anti-inflammatory, anti-pyretic, analgesic, and sedative action. A preferred method of making the new compounds is described.

3,575,981
DIALKYLATED VAT DYE STUFFS OF THE AMINO DIPHthalOYL PHENANTHRIDONE SERIES
Charles W. C. Stein, Westfield, N.J., assignor to GAF Corporation
No Drawing. Filed Dec. 18, 1967, Ser. No. 691,243
Int. Cl. C07d 39/00

U.S. Cl. 260—272 2 Claims
An olive green vat dyestuff of relatively low infra-red reflectance having the formula:



wherein R¹ is alkyl or cycloalkyl of 1-6 carbon atoms, and R² is H or NHR¹.

3,575,982

PROCESS FOR PREPARING BUQUINOLATE
Nicholas D. Harris, Norwich, N.Y., assignor to
The Norwich Pharmacal Company
No Drawing. Filed Oct. 28, 1968, Ser. No. 771,310
Int. Cl. C07d 33/48

U.S. Cl. 260—287 1 Claim
A process for preparing buquinolate by cyclization of diethyl 3,4-diisobutoxyanilinomethylenemalonate with esters of phosphoric acid is described.

3,575,983

**SUBSTITUTED 1,2,3,4-TETRAHYDROISO-
QUINOLINES**

Willy Leimgruber, Montclair, and Fausto Eugenio Schenker, Bloomfield, N.J., assignors to Hoffmann-La Roche Inc., Nutley, N.J.
No Drawing. Filed Aug. 30, 1967, Ser. No. 664,268
Int. Cl. C07d 35/28

U.S. Cl. 260—286 3 Claims
Novel pharmacologically active 1,2,3,4-tetrahydro-8-isoquinolinol, 1-and/or 2-(lower alkyl)-1,2,3,4-tetrahydro-8-isoquinolinols and intermediates therefor, are prepared utilizing, for example, 8-isoquinolinol as a starting material. The pharmacologically active compounds of the invention are useful as hypotensive agents.

3,575,984

**1-R-3,4-DIHYDRO-4-METHYL-4-PHENYL-
6-CHLORO-CARBOSTYRILS**

Janis Plostnieks, Philadelphia, Pa., assignor to
McNeil Laboratories, Inc.
No Drawing. Filed Mar. 30, 1967, Ser. No. 626,982
Int. Cl. C07d 33/42, 33/58

U.S. Cl. 260—289 4 Claims
The compounds herein are 3,4-dihydro-4-methyl-4-phenyl-6-chloro-carbostyryl derivatives, useful for their various pharmacological activities, such as anti-inflammatory, hypotensive and central nervous system depressant activities. Also included herein is 4'-chloro- β -methyl-cinnamamide, useful in the synthesis of the subject carbostyryls.

3,575,985

PYRIDINIUM COMPOUNDS

Alexander Crawford Ritchie, Eric Eastwood, and Peter Garside, London, England, assignors to Allen and Hanburys Limited, London, England
No Drawing. Filed June 26, 1967, Ser. No. 648,983
Claims priority, application Great Britain, June 28, 1966, 28,898/66
Int. Cl. C07d 31/22

U.S. Cl. 260—290 11 Claims
Novel pyridinium salts are disclosed having an effect on the cardiovascular and nervous systems.

They are prepared by reaction of pyridine compounds with organic halides and related compounds. There is also disclosure of pharmaceutical compositions containing the pyridinium salts.

3,575,986

METHOD OF PRODUCING PYRIDINE

Joseph G. Crist, Mount Lebanon Township, Allegheny County, and John O. Hawthorne, Penn Hills Township, Allegheny County, Pa., assignors to United States Steel Corporation
No Drawing. Filed June 6, 1968, Ser. No. 734,882
Int. Cl. C07d 31/06

U.S. Cl. 260—290 6 Claims
A method is disclosed for producing pyridine and related compounds in which formamide is used as the nitrogen-bearing starting material. Formamide is reacted with

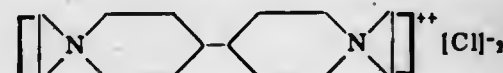
an unsaturated hydrocarbon (e.g. acetylene) in the presence of a catalyst (e.g. alumina spheres coated with zinc fluoride).

3,575,987

**N,N'-BIS-(ETHYLENE)-4,4'-BIPERIDYL
DICHLORIDE**

Robert J. Rutman, Philadelphia, Pa., assignor to The Trustees of the University of Pennsylvania
No Drawing. Continuation-in-part of application Ser. No. 540,498, Apr. 6, 1966. This application July 2, 1969, Ser. No. 838,641
Int. Cl. C07d 29/28

U.S. Cl. 260—293 1 Claim
The novel compound N,N'-bis-(ethylene)-4,4'-bipiperidyl dichloride is provided which is represented by the formula



The compound of this invention is especially useful for promoting the growth of vertebrate animals.

3,575,988

**PIPERIDYL BIS(PARACHLOROPHENOXY)
ACETATES**

Rudolf G. Griot, Florham Park, N.J., assignor to Sandoz-Wander, Inc., Hanover, N.J.
No Drawing. Continuation-in-part of application Ser. No. 598,970, Dec. 5, 1966, which is a continuation-in-part of application Ser. No. 568,759, July 29, 1966, which in turn is a continuation-in-part of application Ser. No. 549,475, May 12, 1966, now abandoned. This application Feb. 13, 1967, Ser. No. 615,316
The portion of the term of the patent subsequent to Dec. 8, 1987, has been disclaimed
Int. Cl. C07d 29/24

U.S. Cl. 260—294.3 7 Claims
The compounds are of the class of basic esters of bis-(p-chlorophenoxy)acetic acid, e.g., bis-(p-chlorophenoxy)acetic acid 1-methyl-4-piperidyl ester, which are useful as hypocholesteremic/hypolipemic agents.

3,575,989

**5-HYDROXY-4-(1-PIPERIDYL)-HYDROBENZ [c,d]
INDOLES**

Raj K. Razdan, Belmont, and Fatima N. Johnson, Arlington, Mass., assignors to Arthur D. Little, Inc.
No Drawing. Filed Apr. 23, 1968, Ser. No. 723,572
Int. Cl. C07d 29/28

U.S. Cl. 260—294.7 3 Claims
5-hydroxy-4-saturated heterocyclic amino-1,2,2a,3,4,5-hexahydrobenz[cd]indoles are prepared by amination of 1-benzoyl-4,5-epoxy-1,2,2a,3,4,5-hexahydrobenz[cd]indole with an appropriate secondary amine followed by debenzoylation and in turn are converted, if desired, to the corresponding tetrahydro compounds by dehydrogenation. The compounds are useful as central nervous system depressants.

3,575,990

**4-AR-1-(4-AR-4-AR-BUTYL)-4-HYDROXY-
PIPERIDINES**

Hubert Karel Frans Hermans, Beersse, and Carlos Jan Ernest Josef Nlemegeers, Deurne, Belgium, assignors to Janssen Pharmaceutica N.V.
No Drawing. Filed Sept. 3, 1969, Ser. No. 855,016
Int. Cl. C07d 29/16

U.S. Cl. 260—294.7 7 Claims
Compounds useful as neuroleptic agents defined as 4-aryl-1-(4,4-diaryl-butyl)-4-hydroxy-piperidines.

3,575,991

**1-[4-ARYL-5-CARBOXYMETHYL-2-THIAZOLYL]-
1,6-DIHYDRO-6-OXONICOTINIC ACIDS AND
ESTERS THEREOF**

Dong H. Kim, Wayne, Stanley C. Bell, Penn Valley, and Arthur A. Santilli, Havertown, Pa., assignors to American Home Products Corporation, New York, N.Y.
No Drawing. Filed Mar. 11, 1969, Ser. No. 806,294
Int. Cl. C07d 31/50

U.S. Cl. 260—294.8 6 Claims
This invention concerns 1-[4-aryl-5-carboxymethyl-2-thiazolyl]-1,6-dihydro-6-oxonicotinic acids and esters thereof which are pharmacologically active as central nervous system depressants. Further, it relates to the process of their preparation by the reaction of a 2-amino-4-aryl-5-thiazoleacetic acid ester with an alkyl coumalate.

3,575,992

**VAPOR PHASE PRODUCTION OF
DICHLOROXYANOPYRIDINES**

William H. Taplin III, Lafayette, Calif., assignor to The Dow Chemical Company, Midland, Mich.
No Drawing. Continuation-in-part of application Ser. No. 666,474, Sept. 8, 1967, now Patent No. 3,420,833, which is a continuation-in-part of application Ser. No. 321,283, Nov. 4, 1963. This application Jan. 6, 1969, Ser. No. 789,373
The portion of the term of the patent subsequent to May 17, 1983, has been disclaimed and dedicated to the Public
Int. Cl. C07d 31/46

U.S. Cl. 260—294.9 8 Claims
Dichloroxyanopyridines are prepared by the reaction of chlorine and a monocyanoxyridine or the monochloro derivatives thereof in a process which comprises introducing a monocyanoxyridine, usually carried in a substantially inert diluent, both being in the vapor phase, into a reaction zone and contacting this mixture in a rapid turbulent mixing step with at least two moles of chlorine per mole monocyanoxyridine. The reaction zone is maintained at a temperature in the range of from about 400° C. to about 550° C.

3,575,993

CERTAIN PHENACYL PYRIDINIUM COMPOUNDS
Donald W. Heseltine and Dugald A. Brooks, Rochester, N.Y., assignors to Eastman Kodak Company, Rochester, N.Y.

Original application Aug. 16, 1965, Ser. No. 479,762, now Patent No. 3,455,693, dated July 15, 1969. Divided and this application Aug. 9, 1968, Ser. No. 774,552
Int. Cl. C07d 31/28

U.S. Cl. 260—297 8 Claims



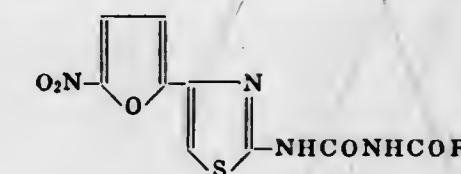
A bulky quaternary nitrogen heterocyclic alkali-release mordant that under alkaline conditions form a betaine that will not mordant anions, is advantageously used as a mordant for a water-soluble acid dye and hydrophilic colloid light-absorbing and light-filtering layers of photographic elements where it is desired to firmly hold the acid dye until photographic processing when during treatment in the alkaline processing solutions the acid dye is completely released and the betaine formed of the mordant is incapable of remordanting the acid dye or thio-sulfate ions from the fixing bath.

3,575,994

ACYL UREAS

Peter John Islip, Hampton, England, assignor to Parke, Davis & Company, Detroit, Mich.
No Drawing. Filed Mar. 6, 1968, Ser. No. 710,749
Claims priority, application Great Britain, Mar. 23, 1967, 13,878/67
Int. Cl. C07d 99/10

U.S. Cl. 260—306.8 6 Claims
N-acyl(nitrofurylthiazolyl)urea compounds



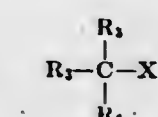
are prepared by reacting 2-amino-4-(5-nitro-2-furyl)thiazole with an acyl isocyanate R-CONCO, where R is lower alkyl or α - or β -haloalkyl. The compounds (I) are pharmacological agents having antiparasitic and antibacterial activity.

3,575,995

AMINO ISOXAZOLES

Harry Allen Albrecht, Towaco, and John Thomas Plati, Rutherford, N.J., assignors to Hoffmann-La Roche Inc., Nutley, N.J.
No Drawing. Original application Apr. 6, 1965, Ser. No. 446,103, now Patent No. 3,544,582, dated Dec. 1, 1970. Divided and this application Feb. 24, 1970, Ser. No. 13,855
Int. Cl. C07d 85/22

U.S. Cl. 260—307 3 Claims
3-tert. alkylamino-4-(H or alkyl)-5-alkyl isoxazoles are prepared by (a) reacting the corresponding 4-(H or alkyl)-5-alkyl isoxazole with isobutylene or a compound of the formula



wherein R₃, R₄ and R₅ are lower alkyl and X is I, Cl, Br, OH, ClO₄, lower alkylsulfate, or the anion of a mineral acid, and (b) reacting the product formed with hydroxylamine. The 3-tert. alkylamino-4-(H or alkyl)-5-alkyl isoxazoles are useful intermediates for the preparation of known antibacterial sulfonamides.

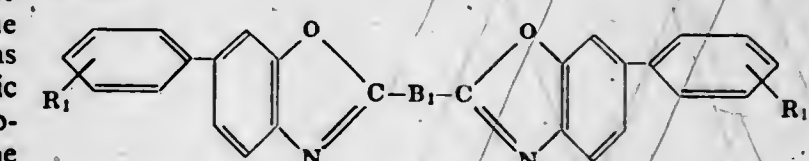
3,575,996

NEW BISAZOLES

Peter Liechti, Binningen, Leonardo Guglielmetti, Birsfelden, Erwin Maeder, Aesch, Basel-Land, and Adolf Emil Siegrist, Basel-Land, Switzerland, assignors to Ciba Limited, Basel, Switzerland

No Drawing. Continuation-in-part of abandoned application Ser. No. 482,275, Aug. 24, 1965. This application Mar. 1, 1966, Ser. No. 530,800
Claims priority, application Switzerland, Sept. 1, 1964, 11,402
Int. Cl. C07d 85/48

U.S. Cl. 260—307 8 Claims
This invention concerns new optical brighteners of the formula



wherein R₁ is hydrogen or alkyl and B₁ stands for a direct carbon-to-carbon bond, or a possibly substituted phenylene or biphenylene group, as well as organic fiber materials optically brightened therewith.

3,575,997

NOVEL NEMATOCIDES AND HERBICIDES
Hermann Breuer, Regensburg, Germany, assignor to E. R. Squibb & Sons, Inc., New York, N.Y.
No Drawing. Filed July 24, 1968, Ser. No. 747,103
Int. Cl. C07d 85/52

U.S. Cl. 260—307 1 Claim
3-amino-5-n-undecyl-1,2,4-oxadiazole and salts thereof and methods for their use as nematocides and aquatic herbicides.

3,575,998

OXADIAZOLYL-SUBSTITUTED NITROIMIDAZOLES

Burton G. Christensen, Scotch Plains, and Dale R. Hoff, Basking Ridge, N.J., assignors to Merck & Co., Inc., Rahway, N.J.
No Drawing. Filed Sept. 16, 1969, Ser. No. 858,538
Int. Cl. C07d 85/54

U.S. Cl. 260—307 5 Claims
This invention relates to nitroimidazoles substituted by 1,3,4-oxadiazolinones. These novel compounds have antibacterial activity, especially against Streptomyces and Salmonella. The compounds also show anti-coccidial activity against various species of Eimeria.

3,575,999

KETAL DERIVATIVES OF IMIDAZOLE

Erik Fred Godefroi and Jan Heeres, Turnhout, Belgium, assignors to Janssen Pharmaceutica N.V.
No Drawing. Filed Aug. 19, 1968, Ser. No. 753,746
Int. Cl. C07d 49/36

U.S. Cl. 260—309 4 Claims
The compounds are of the class of 1-(β -aryl)ethyl-imidazole ketals useful for their anti-fungal and antibacterial activities.

3,576,000

AMINOETHER DERIVATIVES OF 9,10-DIHYDRO-9,10-ETHANO-9-ANTHROLS AND THEIR SALTS
Jacques Robert Boissier, Paris, and Roger Ratouis, Saint Cloud, France, assignors to Societe Industrielle pour la Fabrication des Antibiotiques (S.I.F.A.), Puteaux, France

No Drawing. Filed July 3, 1967, Ser. No. 650,636
Claims priority, application France, July 6, 1966, 68,353; Sept. 23, 1966, 77,375

The portion of the term of the patent subsequent to Jan. 14, 1986, has been disclaimed
Int. Cl. C07c 93/06

U.S. Cl. 260—326.5 6 Claims
Aminoether derivatives of 9,10-dihydro-9,10-ethano-9-antrols and their acid addition and quaternary ammonium salts. These compounds are useful in therapeutics because of their antihistaminic and local anesthetic properties.

3,576,001

2-AMINO-3-ARYL-3H-INDOL-3-OLS AND THEIR METHOD OF PREPARATION

Stanley C. Bell, Narberth, and Carl Gochman, Philadelphia, Pa., assignors to American Home Products Corporation, New York, N.Y.

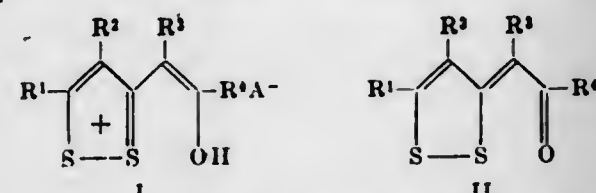
No Drawing. Filed Dec. 28, 1967, Ser. No. 694,066
Int. Cl. C07d 27/36

U.S. Cl. 260—326.12 6 Claims
A new process is disclosed reacting a 2-benzoyl acyl-anilide with ionic cyanides to form new 3-aryl-2-imino-3-indolinols and 2-amino-3-aryl-3H-indol-3-ols. The products may be further processed into a number of new derivatives which have therapeutic activity in experimental and comparative pharmacology.

3,576,002

DITHIOLE COMPOUNDS AND PREPARATION
Erwin Klingsberg, Mountainside, N.J., assignor to American Cyanamid Company, Stamford, Conn.
No Drawing. Filed Mar. 12, 1968, Ser. No. 712,382
Int. Cl. C07d 71/00; C09b 49/00

U.S. Cl. 260—327 9 Claims
3-chloro-1,2-dithiolium salts condense with phenolic compounds to form dyes of Formulas I (salt) or II (free base):



where typically R^1 and R^2 together form a benzo or naphtho nucleus; R^3 and R^4 together form a substituted or unsubstituted phenyl, naphtho or phenanthro nucleus, the substituents being alkyl, halo, carboxyl or di(lower) alkylamino; and A^- is an anion. The products are useful dyes.

3,576,003

ARYL HETERO ACRYLAMIDES

Albert F. Strobel, Delmar, and Sigmund C. Catino, Castleton, N.Y., assignors to GAF Corporation, New York, N.Y.

No Drawing. Continuation-in-part of applications Ser. No. 248,305, Dec. 31, 1962, and Ser. No. 573,795, Aug. 22, 1966. This application Nov. 15, 1967, Ser. No. 683,136
Int. Cl. C07d 5/16, 63/12; C11d 7/00

U.S. Cl. 260—332.2 19 Claims
Substantially colorless compounds which exhibit a prominent absorption peak between 250 A. and 400 A. and which are stabilizers for organic materials against the degradative effect of such radiation are characterized as aryl, hetero acrylamides, the said hetero moiety being of the group containing 5 and 6 members in the ring and wherein the hetero atom is at least one of the group of oxygen, nitrogen, and sulfur.

3,576,004

NOVEL RING-E SUBSTITUTED 4-CYANO-3-SECOYOHIMBANES

Jay Donald Albright and Leon Goldman, Nanuet, N.Y., assignors to American Cyanamid Company, Stamford, Conn.

No Drawing. Filed Sept. 9, 1968, Ser. No. 758,593
Int. Cl. C07d 27/54

U.S. Cl. 260—326.3 7 Claims
This disclosure describes compounds of the class of ring-E substituted 4-cyano-3-secoyohimbanes and 4-cyano-3-secoalloyohimbanes useful as analgesics, anti-inflammatory agents, and central nervous system depressants.

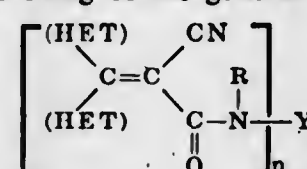
3,576,005

BIS HETERO CYANOACRYLAMIDES

Albert F. Strobel, Delmar, and Sigmund C. Catino, Castleton, N.Y., assignors to GAF Corporation, New York, N.Y.

No Drawing. Continuation-in-part of application Ser. No. 601,346, Dec. 13, 1966, which is a continuation-in-part of application Ser. No. 242,889, Dec. 7, 1962. This application Feb. 28, 1969, Ser. No. 803,422
Int. Cl. C09b 23/00

U.S. Cl. 260—332.2 18 Claims
Essentially colorless compounds useful as absorbers for ultraviolet light and stabilizers for organic materials, such compounds being of the general formula:



wherein:

- (a) (HET) is a monocyclic heterocyclic nucleus or corresponding benzo monocyclic heterocyclic nucleus;
- (b) n is an integer of 1 or 2;
- (c) R is hydrogen, alkyl, aryl or the atoms necessary to form a heterocyclic ring with N and Y when $n=1$;
- (d) when $n=1$ Y is hydrogen, alkyl, aryl or the atoms necessary to form a heterocyclic ring with N and R ; and
- (e) when $n=2$, Y is a bivalent bridging radical.

3,576,006

PREPARATION OF SUBSTITUTED PERHYDRO-INDENES AND PERHYDRONAPHTHALENES

Gabriel Saucy, Essex Fells, N.J., assignor to Hoffmann-La Roche Inc., Nutley, N.J.

No Drawing. Division of application Ser. No. 679,989, Nov. 2, 1967, which is a continuation-in-part of application Ser. No. 633,730, Apr. 26, 1967, which is a continuation-in-part of application Ser. No. 604,124, Dec. 23, 1966, which in turn is a continuation-in-part of application Ser. No. 549,816, May 13, 1966. This application June 6, 1968, Ser. No. 734,893
Int. Cl. C07d 13/04

U.S. Cl. 260—340.9 9 Claims
3-substituted-6 α -alkyl-4 α -hydroxy, alkoxy, and acyloxy perhydrocyclopenta[1,1]benzopyrans or perhydronaphtho[2,1-b]pyrans are converted into 4-(3-oxo-alkyl)perhydroindene-5-ones or the corresponding perhydronaphthalene-6-ones. These latter compounds can be converted to known steroidal materials which are pharmacologically active as progestational agents.

3,576,007

WATER SOLUBLE SALTS OF ELLAGIC ACID

Francis A. Hochstein, New London, Conn., assignor to Pfizer Inc., New York, N.Y.

No Drawing. Filed Jan. 16, 1967, Ser. No. 609,346
Int. Cl. A61k 27/00; C07d 7/24

U.S. Cl. 260—343.2 2 Claims
The soluble dicholine and bis-triethylamine salts of ellagic acid are prepared, aqueous solutions of which are useful as intravenously injectable hemostatic agents.

3,576,008

SYNTHESIS OF 2-HYDROXY-2,6,6-TRIMETHYLCYCLOHEXYLIDENE ACETIC ACID, γ -LACTONE

Joseph N. Schumacher, Winston-Salem, N.C., assignor to R. J. Reynolds Tobacco Company, Winston-Salem, N.C.

No Drawing. Filed Jan. 29, 1968, Ser. No. 701,104
Int. Cl. C07d 5/06

U.S. Cl. 260—343.3 5 Claims
Synthesis of 2-hydroxy-2,6,6-trimethylcyclohexylidene acetic acid, γ -lactone wherein β -ionone is irradiated with ultraviolet light and the resulting irradiated product is oxidized to 2-hydroxy-2,6,6-trimethylcyclohexylidene acetic acid, γ -lactone.

3,576,009

AMPHETAMINE DERIVATIVES

Ernest Magnien, Flushing, and Bill Elpern, White Plains, N.Y., assignors to USV Pharmaceutical Corporation
No Drawing. Filed Apr. 2, 1968, Ser. No. 718,220
Int. Cl. C07d 5/06

U.S. Cl. 260—343.6 5 Claims
Derivatives of amphetamine obtained by the reaction of amphetamine with 2-acyllactone or a β -keto-ester or

the compound obtained upon hydrogenation of the lactone reaction product are potent appetite depressants but do not show the CNS activity of amphetamine.

3,576,010

SUBSTITUTED ANILINO HALOGENATED FURANONES

Gerald L. Bachman, Kirkwood, Mo., assignor to Monsanto Company, St. Louis, Mo.

No Drawing. Filed June 16, 1967, Ser. No. 646,444
Int. Cl. C07d 5/06; A61k 27/00

U.S. Cl. 260—343.6 9 Claims
This disclosure covers substituted anilino halogenated furanones as new chemical compounds. These compounds have been found to be useful in the control of bacteria.

3,576,011

TETRAHYDROPYRAN PRODUCTION

Peter Haynes, 433 Michigan Ave., Berkeley, Calif. 94707

No Drawing. Filed Oct. 28, 1968, Ser. No. 771,368
Int. Cl. C07d 7/04

U.S. Cl. 260—345.1 10 Claims
Dialkenyl-substituted tetrahydropyran compounds, useful in perfume compositions and as solvents, are produced by contacting conjugated diolefinic compounds and formaldehyde in the presence of an organophosphine-containing palladium(O) complex.

3,576,012

NICKEL SALTS OF IMINOHETEROCYCLICAMIDES

Albert S. Matlack, Hockessin, Del., assignor to Hercules Incorporated

No Drawing. Filed Nov. 2, 1967, Ser. No. 680,037
Int. Cl. C07d 7/20

U.S. Cl. 260—345.2 3 Claims
Highly colored nickel salts of chelates of iminoheterocyclic carboxamides or carbothiamides suitable as pigments are described. The nickel salts are prepared by reacting a nickel halide or a nickel salt of a weak acid with the desired iminoheterocyclic carboxamide or carbothiamide, as for example, with 2-iminocoumarin-3-carboxamide, which in turn can be preformed or formed in situ by condensing the appropriate aldehyde with a cyanoacetamide or cyanothioacetamide. Pigmentary mixed chelates are also formed in the same manner by reacting the nickel salt with a mixture of the desired iminoheterocyclic carboxamide or carbothiamide and at least one other chelating agent such as, for example, dimethylglyoxime, 1-nitroso-2-naphthol, etc.

3,576,013

POLYANHYDRIDES

William Cummings, Marford, Wales, assignor to Monsanto Chemicals Limited, London, England

No Drawing. Continuation-in-part of application Ser. No. 331,368, Dec. 18, 1963. This application Mar. 1, 1968, Ser. No. 709,805

Claims priority, application Great Britain, Dec. 28, 1962, 48,750/62; Mar. 16, 1967, 12,466/67
Int. Cl. C07c 63/48

U.S. Cl. 260—346.3 6 Claims
This invention relates to new anhydride containing compositions and more particularly to mixtures of aromatic polyanhydrides and to processes for their preparation. The anhydrides of the present invention are characterized by having at least one anhydride group per molecule located on an aromatic nucleus, which aromatic nucleus is directly linked to at least one other aromatic nucleus by a direct nuclear carbon to nuclear carbon bond. These materials are of particular value as starting materials in the production of condensation polymers.

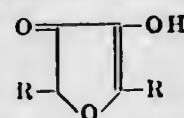
3,576,014

ALKYL SUBSTITUTED DIHYDROFURANS AND METHOD OF MANUFACTURE

Luciano Re, Meyrin, Geneva, and Gunther Ohloff, Bernex, Geneva, Switzerland, assignors to Firmenich & Cie, Geneva, Switzerland

No Drawing. Filed June 12, 1968, Ser. No. 736,269
Claims priority, application Switzerland, June 16, 1967, 8,620/67; June 5, 1968, 8,254/68
Int. Cl. C07d 5/10; A231 1/00

U.S. Cl. 260—347.8 8 Claims
The present invention relates to a novel process for preparing dihydrofuran derivatives of formula



wherein one of the symbols R means a methyl radical and the other one an ethyl radical or wherein both symbols R represent methyl radicals. The compounds of Formula I possess valuable organoleptic properties and are, therefore, useful as flavouring agents and as fragrances. The invention also relates to those compounds of Formula I wherein one of the R's is ethyl and which are new substances. The invention furthermore relates to new intermediates used in the said new process and to methods for preparing them.

3,576,015

ANTHRAQUINONE DYESTUFFS

Guido R. Genta, Dunstons, Pa., assignor to American Aniline Products, Inc.

No Drawing. Filed May 8, 1969, Ser. No. 823,183
Int. Cl. C09b 1/56

U.S. Cl. 260—371 4 Claims
New anthraquinone dyes, 1,4-diamino-2- (or -3-)thiophenoxy-3 (or -2-)chloro - 5 - phenylsulfonamidoanthraquinones, are made from 1,4-diamino-2,3-dichloro-anthraquinone by a sequence of reactions involving bromination in anhydrous aluminum chloride and Ullmann reaction followed by replacement of a chlorine atom with a thiophenoxy group. The new dyes have excellent substantivity, lightfastness and sublimation properties on aromatic polyester fibers.

3,576,016

PREPARATION OF BENZOQUINONES

Herman L. Finkbeiner, Ballston Lake, N.Y., assignor to General Electric Company

No Drawing. Filed Apr. 1, 1968, Ser. No. 717,932
Int. Cl. C07c 49/02

U.S. Cl. 260—396 12 Claims
Poly(2,6-disubstituted-1,4-phenylene oxides) are reacted with an oxidizing agent in the presence of a carboxylic acid to produce the corresponding 2,6-disubstituted p-benzoquinones. These products are very reactive compounds and may be used as chemical intermediates, as oxidizing agents or they may be reduced to the corresponding hydroquinones which are useful for making polyesters, polycarbonates, polyurethanes, etc.

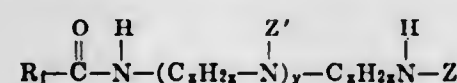
3,576,017

HALOALKANOYL DERIVATIVES OF FLUORINATED AMIDES

Richard F. Sweeney, Randolph Township, Morris County, and Alson K. Price, Morris Township, Morris County, N.J., assignors to Allied Chemical Corporation, New York, N.Y.

No Drawing. Filed Aug. 1, 1968, Ser. No. 749,321
Int. Cl. C09f 7/00

U.S. Cl. 260—404.5 16 Claims
Haloalkanoyl derivatives of fluorinated amides useful as oil- and water-repellency agents have the structural formula



wherein x and y are integers from 2 to 6 and 1 to 4, respectively; wherein R₁ is a perfluoroalkyl or a fluorinated isoalkoxyalkyl radical; Z is H, alkyl, hydroxyalkyl, a fluorinated acyl radical R₂CO— wherein R₂ is as described above, or a haloalkanoyl radical; and Z' is H, alkyl, hydroxyalkyl, a fluorinated acyl radical R₂CO— wherein R₂ is as described above, a haloalkanoyl radical or a radical having the formula —C_xH_{2x}NHZ wherein Z is as described above, there being at least one fluorinated acyl radical R₂CO— and at least one haloalkanoyl radical in the molecule represented by Z and/or Z'.

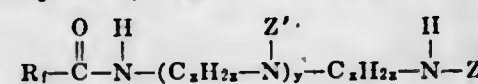
3,576,018

ACRYLYL DERIVATIVES OF FLUORINATED AMIDES

Richard F. Sweeney, Randolph Township, Morris County, and Alson K. Price, Morris Township, Morris County, N.J., assignors to Allied Chemical Corporation, New York, N.Y.

No Drawing. Filed Aug. 1, 1968, Ser. No. 749,310
Int. Cl. C09f 7/00

U.S. Cl. 260—404.5 13 Claims
Acrylyl derivatives of fluorinated amides useful as oil- and water-repellency agents have the structural formula



wherein x and y are integers from 2 to 6 and 1 to 4, respectively; wherein R₁ is a perfluoroalkyl or a fluorinated isoalkoxyalkyl radical; Z is H, alkyl, hydroxyalkyl, a fluorinated acyl radical R₂CO— wherein R₂ is as described above, or an acrylyl radical; Z' is H, alkyl, hydroxyalkyl, a fluorinated acyl radical R₂CO— wherein R₂ is as described above, an acrylyl radical or a radical having the formula —C_xH_{2x}NHZ wherein Z is as described above, there being at least one fluorinated acyl radical R₂CO— and at least one acrylyl radical in the molecule represented by Z and/or Z'.

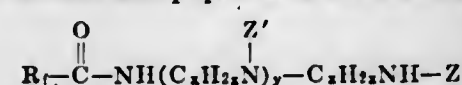
3,576,019

FLUOROCARBON OIL-REPELLENCY AGENTS

Richard F. Sweeney, Randolph Township, Morris County, and Alson K. Price, Morristown, N.J., assignors to Allied Chemical Corporation, New York, N.Y.

No Drawing. Filed Aug. 1, 1968, Ser. No. 749,351
Int. Cl. C09f 7/00

U.S. Cl. 260—404.5 9 Claims
Fluorinated amide oil-repellency agents for fibrous materials as textiles and paper have the structural formula



wherein R₁ is a fluorine-containing alkyl radical having a terminal fluoroalkoxyfluoroalkyl group; x and y are integers from 2 to 6 and 1 to 4, respectively; Z is H, alkyl, hydroxyalkyl or an acyl radical of the formula —COR₂ wherein R₂ is as described above; and Z' is H, alkyl, hydroxyalkyl, the above-described acyl radical or a radical of the formula —C_xH_{2x}NHZ wherein Z is as described above.

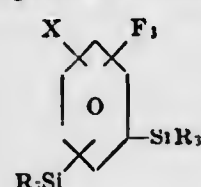
3,576,020

FLUOROAROMATIC SILICONE COMPOUNDS

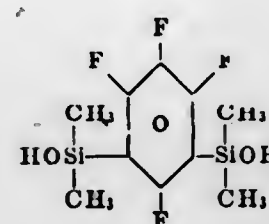
Lorne A. Loree and Eric D. Brown, Midland, Mich., assignors to Dow Corning Corporation, Midland, Mich.

No Drawing. Filed Feb. 20, 1969, Ser. No. 801,202
Int. Cl. C07f 7/08, 7/18

U.S. Cl. 260—448.20 11 Claims
Compounds of the general formula



for example



are hydrolyzed and condensed to produce polymers from which elastomers can be formulated.

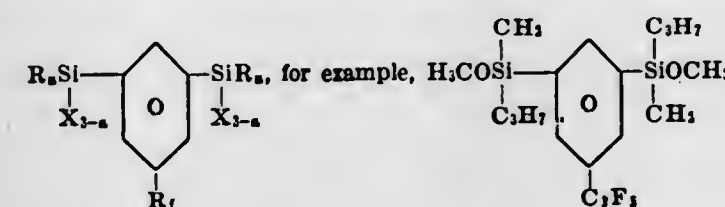
3,576,021

BIS-SILYLFLUOROALKYLAROMATIC COMPOUNDS

George A. Grindahl, Midland, Mich., assignor to Dow Corning Corporation, Midland, Mich.

No Drawing. Filed Feb. 20, 1969, Ser. No. 801,203
Int. Cl. C07f 7/08, 7/18

U.S. Cl. 260—448.2 6 Claims
Bis-silyl compounds of the general formula



are hydrolyzed and condensed to produce polymers from which heat-stable polymers can be formulated.

3,576,022

ORGANOSILICON COMPOUNDS

Richard P. Bush, Penarth, Glamorgan, and Christopher A. Pearce, Cowbridge, Glamorgan, Wales, assignors to Midland Silicones Limited, Reading, England

No Drawing. Filed Oct. 3, 1968, Ser. No. 764,926
Claims priority, application Great Britain, Oct. 5, 1967, 45,560/67
Int. Cl. C07f 7/02

U.S. Cl. 260—448.2 5 Claims
Silazane endblock siloxanes of the formula



where R, R' and R'' are defined organic radicals and R can also be hydrogen.

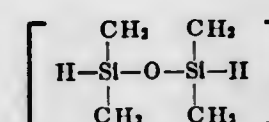
3,576,023

METHOD FOR PREPARATION OF SI—H FUNCTIONAL ORGANODISILOXANES

James William Curry, Dallas, Tex., assignor to Texas Instruments Incorporated, Dallas, Tex.

No Drawing. Filed July 31, 1968, Ser. No. 748,932
Int. Cl. C07f 7/08

U.S. Cl. 260—448.2 5 Claims
Reacting a tertiary alcohol such as tert-butyl alcohol [(CH₃)₃COH] with a diorganohalosilane such as dimethylchlorosilane [(CH₃)₂SiHCl] to produce Si—H functional organodisiloxanes such as sym-tetramethyldi-siloxane



having Si—H bonds.

3,576,024

PREPARATION OF VINYLALKOXYSILOANES

William H. Atwell, Midland, Mich., assignor to Dow Corning Corporation, Midland, Mich.

No Drawing. Filed Aug. 11, 1969, Ser. No. 849,166
Int. Cl. C07f 7/04, 7/18

U.S. Cl. 260—448.8 8 Claims
The preparation of vinylalkoxysilanes which involves

contacting (in a closed system or open continuous system) an alkoxy-substituted disilane with at least a stoichiometric amount of an alcohol, e.g., methanol, and an alkyne, e.g., acetylene, at a temperature of at least 175° C. The recovered vinylalkoxysilanes are particularly useful as crosslinkers and/or chain extenders for a variety of elastomers.

3,576,025

ALPHA-HYDROXYCARBOXYLIC ACID PENTACOORDINATE SILICON COMPLEXES

Cecil L. Frye, Midland, Mich., assignor to Dow Corning Corporation, Midland, Mich.

No Drawing. Filed Aug. 19, 1969, Ser. No. 851,435
Int. Cl. C07d 103/04; C07f 7/04

U.S. Cl. 260—448.8 8 Claims
Alpha-hydroxycarboxylic acid pentacoordinate silicon complexes useful as catalysts or cross-linking agents for epoxy resins are disclosed.

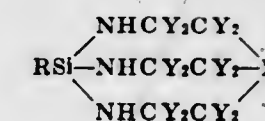
3,576,026

TRIPTYCH-SILAZAZOLIDINES

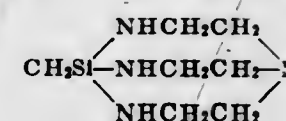
Gary E. Le Grow, Midland, Mich., assignor to Dow Corning Corporation, Midland, Mich.

No Drawing. Filed Oct. 3, 1969, Ser. No. 863,685
Int. Cl. C07f 7/10

U.S. Cl. 260—448.2 6 Claims
Compounds of the formula



are prepared by reacting a trisdialkylaminosilane with a tris(beta-aminoethyl)amine. The products are useful as curing catalysts for epoxy resins. Specific example is the reaction of methyl trisdimethylaminosilane with tris(beta-aminoethyl)amine at 100° to give the compound



3,576,027

HYDROSILATION OF OLEFINS

John Gaylord Fish, Garland, Tex., assignor to Texas Instruments Incorporated, Dallas, Tex.

No Drawing. Filed July 31, 1968, Ser. No. 748,942
Int. Cl. C07f 7/08, 7/18

U.S. Cl. 260—448.2 4 Claims
Platinum-silane catalyst compositions suitable for hydro-silation of olefins are prepared by reacting crystalline chloroplatinic acid with an organic silane or siloxane to form a stable but highly reactive platinum-silane composition. The contact of olefins with this composition results in rapid addition of the organic silane or siloxane thereto.

3,576,028

POLYALKOXYASILANES

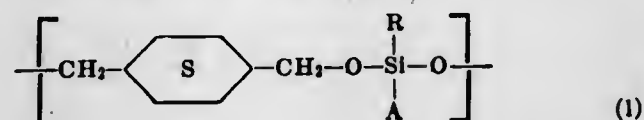
John G. Fish, Garland, Tex., assignor to Texas Instruments Incorporated, Dallas, Tex.

No Drawing. Filed July 31, 1968, Ser. No. 748,941
Int. Cl. C08f 11/04; C08g 31/02; C07f 7/04

U.S. Cl. 260-448.8

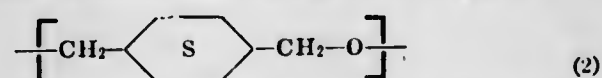
7 Claims

Polyalkoxysilanes having repeating structural units which may be represented by the formula:



where R and A are each selected from the group consisting of hydrogen, monovalent hydrocarbon radicals and oxy, carboxy, alkoxy and halogen substituted derivatives thereof.

A straight chain polyalkoxysilane will be represented by the Formula 1 where R and A are methyl radicals, for example, and a cross-linked polysiloxane will be represented by the formula when R represents the methyl group, and A represents the following monovalent, alkoxy substituted hydrocarbon radical, for example,



when the —O— atom is bound to the silicon atom in Formula 1 above and the methylene group is linked to another structural unit such as represented in Formula 1.

3,576,029

ALKYLTETRAMETHYLDISILOXANE

Loren A. Haluska, Midland, Mich., assignor to Dow Corning Corporation, Midland, Mich.

No Drawing. Filed Aug. 15, 1968, Ser. No. 752,749
Int. Cl. C07f 7/08

U.S. Cl. 260-448.2

2 Claims

Alkyltetramethyldisiloxanes in which the alkyl group has from 12 to 45 carbon atoms are disclosed. The alkyltetramethyldisiloxanes are useful as evaporation accelerators.

3,576,030

ALKYLDIPHENYLSILANES

Richard W. Alsgaard, Midland, Mich., assignor to Dow Corning Corporation, Midland, Mich.

No Drawing. Filed Aug. 15, 1968, Ser. No. 752,777
Int. Cl. C07f 7/08, 7/18

U.S. Cl. 260-448.2

5 Claims

Alkyldiphenylacetoxysilanes and alkyldiphenylmethoxysilanes in which the alkyl group has from 12 to 45 inclusive carbon atoms are disclosed. The alkyldiphenylsilanes are useful as evaporation retardants.

3,576,031

AMIDE ACID AND IMIDO-SUBSTITUTED ORGANOSILANES

Fred F. Holub and Milton L. Evans, Schenectady, N.Y., assignors to General Electric Company

No Drawing. Filed May 5, 1969, Ser. No. 821,969
Int. Cl. C07f 7/10

U.S. Cl. 260-448.2

2 Claims

Organosilanes are provided having at least one chemically-combined aliphatically unsaturated imido organic radical, such as a maleimido-substituted organosilane and a method for making these materials. For example, reaction can be effected between an aliphatically unsaturated dicarboxylic acid anhydride and an aminoorganosilane. In certain instances, amido acid precursors of such unsaturated imido-substituted organosilanes also can be made. The aliphatically unsaturated imido-substituted organosilanes of the present invention can be em-

ployed to impart improved surface characteristics to cellulosic substrates and to make aliphatically unsaturated imido-substituted organopolysiloxanes.

3,576,032

ORGANOSILICON COMPOUNDS

Christopher A. Pearce, Cowbridge, Glamorgan, Wales, assignor to Midland Silicones Limited, Reading, England

No Drawing. Filed May 21, 1969, Ser. No. 826,732
Claims priority, application Great Britain, May 29, 1968, 25,832/68

Int. Cl. C07f 7/06, 7/18

U.S. Cl. 260-448.2

8 Claims

Compounds of the general formula $\text{HR}_2\text{SiC}_6\text{H}_4\text{OM}$ where R is a monovalent hydrocarbon radical and M is H or $-\text{SiR}'_2\text{H}$ where R' is a monovalent hydrocarbon radical as exemplified by $\text{H}(\text{CH}_2)_2\text{SiC}_6\text{H}_4\text{OH}$ and $\text{H}(\text{CH}_2)_2\text{SiC}_6\text{H}_4\text{OSiH}(\text{CH}_3)_2$ and useful in polymerization reactions.

3,576,033

1-METHYL-PHENYLENE-2,4-BIS(TRIETHOXY-SILYL) PROPYLENE-3'-UREYLENE

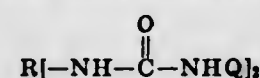
Giuliana C. Tesoro, Dobbs Ferry, N.Y., and Wing Kai Lee, Hackensack, N.J., assignors to J. P. Stevens & Co., Inc., New York, N.Y.

No Drawing. Filed May 22, 1967, Ser. No. 640,388
Int. Cl. C07f 7/04; C08f 11/04; C08g 22/00

U.S. Cl. 260-448.8

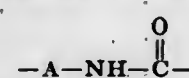
1 Claim

This invention relates to novel silyl ureas useful as finishing agents. These compounds are of the structure:



wherein R is a divalent organic radical selected from the group consisting of:

(a) chains of linear polymers terminated on both ends by ariylenecarbamoyl radicals of the structure



wherein A is ariylene, and

(b) hydrocarbon radicals,

wherein Q is a silylalkyl radical having affixed to the silicon atom three substituents selected from the group consisting of alkyl, alkoxy, and aryloxy at least one substituent of which is selected from the group consisting of alkoxy and aryloxy, with the proviso that said alkyl moiety of the silylalkyl can be interrupted by ether oxygen (—O—), and imino groups



wherein R' is selected from the group consisting of hydrogen, aryl and alkyl.

3,576,034

ORGANOSILICON COMPOUNDS

Christopher A. Pearce, Cowbridge, Glamorgan, Wales, assignor to Midland Silicones Limited, Reading, England

No Drawing. Filed May 21, 1969, Ser. No. 826,731
Claims priority, application Great Britain, May 29, 1968, 25,833/68

Int. Cl. C07f 7/06, 7/18

U.S. Cl. 260-448.8

4 Claims

Silanes of the formula $\text{XC}_6\text{H}_4\text{OSiHR}'_2$ where X is Cl or Br and R' is a monovalent hydrocarbon radical prepared by reacting a halogenated phenol ($\text{XC}_6\text{H}_4\text{OH}$) with an organosilicon compound having an $\text{R}'_2\text{HSi}-$ group present. The products are useful in preparing polymeric materials.

3,576,035

ALCOHOLYSIS OF THE SILICON-SILICON BOND

William H. Atwell, Midland, Mich., assignor to Dow Corning Corporation, Midland, Mich.

No Drawing. Continuation-in-part of application Ser. No. 797,695, Feb. 7, 1969. This application June 2, 1969, Ser. No. 829,703

Int. Cl. C07f 7/04, 7/18

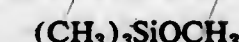
U.S. Cl. 260-448.8

10 Claims

The alcoholysis of polysilanes which involves employing palladium-on-charcoal as the catalyst. For example, one can mix a disilane of the formula



with an alcohol, e.g., CH_3OH , in the presence of palladium-on-charcoal at room temperature. Hydrogen is evolved and an alkoxysilane of the formula



is obtained. Heretofore, there was no available transition-metal catalyst for catalyzing alcoholysis of hexamethyldisilane.

ERRATUM

For Class 264-94 see:
Patent No. 3,575,949

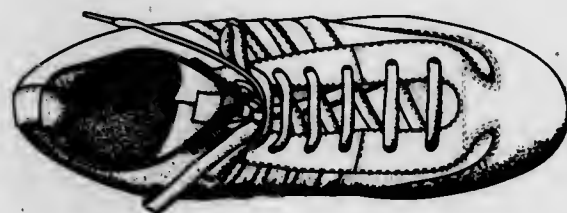
DESIGNS

APRIL 20, 1971

220,464 SPORT SHOE

Hideo Hayashi, Kakogawa, Japan, assignor to Onitsuka Co., Ltd., Kobe, Japan
Filed Apr. 9, 1970, Ser. No. 22,341
Term of patent 14 years
Int. Cl. D2-04

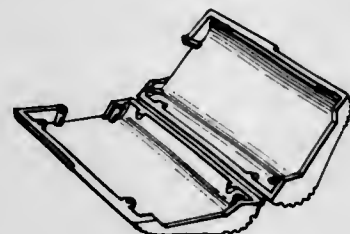
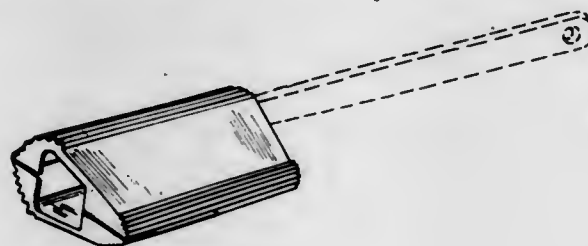
U.S. Cl. D2-309



220,465 TOOTHBRUSH COVER

Seymour F. Fohrman, 8242 McCormick Blvd., Skokie, Ill. 60076
Filed Aug. 25, 1969, Ser. No. 18,847
Term of patent 3½ years
Int. Cl. D4-02

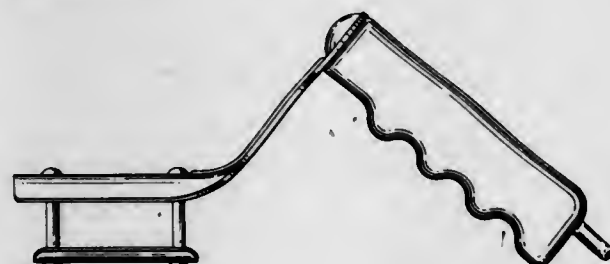
U.S. Cl. D4-18



220,466 HANDLE GRIP FOR A SNOW SHOVEL OR SIMILAR ARTICLE

Walter R. Hart, Columbus, Ohio, assignor to The Union Fork and Hoe Company, Columbus, Ohio
Filed Feb. 24, 1970, Ser. No. 21,581
Term of patent 14 years
Int. Cl. D8-01

U.S. Cl. D8-1

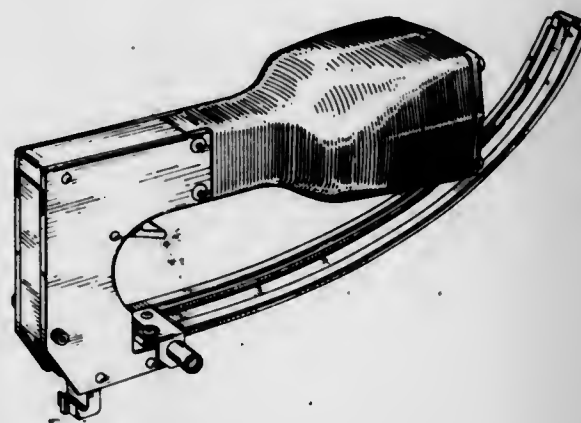


220,467 PORTABLE POWER ACTUATED CLIP-APPLYING TOOL

Harrison C. Lingle, Wilmette, and Arthur Langas, Glenview, Ill., assignors to Hartco Company, Wilmette, Ill.

Filed Sept. 4, 1969, Ser. No. 19,010
Term of patent 14 years
Int. Cl. D8-02

U.S. Cl. D8-49



220,468 BOTTLE

Jerome Gould, Los Angeles, Calif., assignor to Gem Incorporated, Byhalia, Miss.
Filed Apr. 17, 1970, Ser. No. 22,485
Term of patent 14 years
Int. Cl. D9-01

U.S. Cl. D9-47



APRIL 20, 1971

U. S. PATENT OFFICE

625

220,469 BOTTLE

Tapio Wirkkala, Helsinki, Finland, assignor to Oy Alko Ab, Helsinki, Finland
Filed Oct. 2, 1969, Ser. No. 19,375
Term of patent 14 years
Int. Cl. D9-01

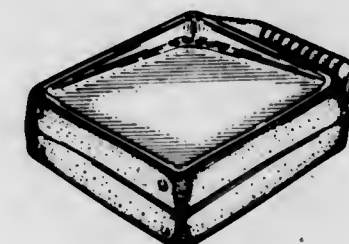
U.S. Cl. D9-80



220,470 COMBINED DRIP PAN AND CONTAINER FOR LIQUIDS

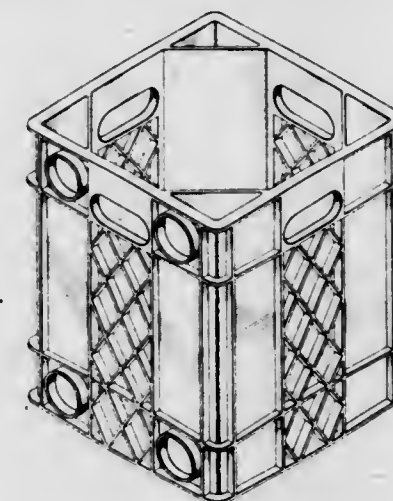
Andrew R. Lewis, 9166 E. 4th, Tulsa, Okla. 74112
Filed Mar. 19, 1970, Ser. No. 21,980
Term of patent 3½ years
Int. Cl. D9-07

U.S. Cl. D9-175



220,471
WATER BOTTLE CASE
Carl E. Frahm and Shirley E. Frahm, both of 1428 Oak Meadow Road, Arcadia, Calif. 91006
Filed Apr. 30, 1970, Ser. No. 22,737
Term of patent 14 years
Int. Cl. D9-04

U.S. Cl. D9-177



220,472 BUILDING

Cesar Pelli, Los Angeles, Calif., assignor to American Snacks, Inc., Chelsea, Mass.
Filed Sept. 17, 1969, Ser. No. 19,179
Term of patent 14 years
Int. Cl. D25-04

U.S. Cl. D13-1



220,473 BUILDING

Cesar Pelli, Los Angeles, Calif., assignor to American Snacks, Inc., Chelsea, Mass.
Filed Sept. 17, 1969, Ser. No. 19,197
Term of patent 14 years
Int. Cl. D25-04

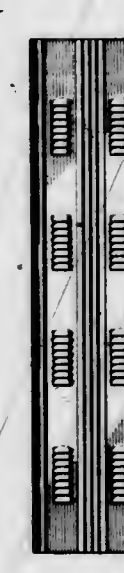
U.S. Cl. D13-1



220,474 SHUTTER PANEL

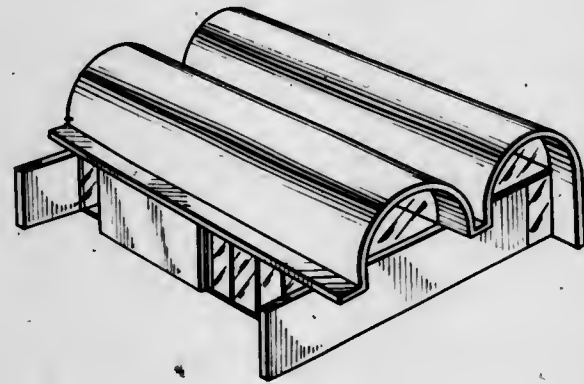
John H. Sassano, 2215 Filmore St., Hollywood, Fla. 33020
Filed Feb. 13, 1970, Ser. No. 21,438
Term of patent 14 years
Int. Cl. D25-02

U.S. Cl. D13-1



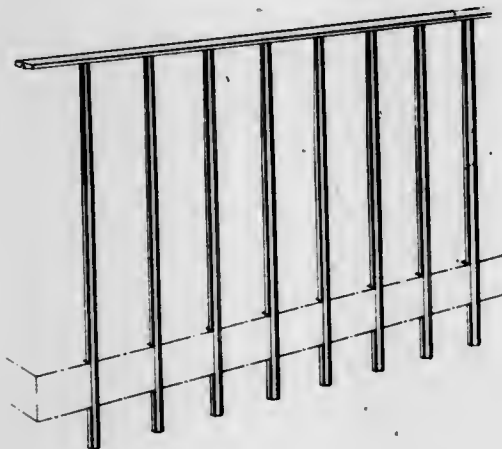
220,475
BUILDING
Elliott H. Brenner, Lafayette, Ind., assignor to
Arancida, Inc., West Lafayette, Ind.
Filed June 22, 1970, Ser. No. 23,602
Term of patent 14 years
Int. Cl. D25—04

U.S. Cl. D13—1



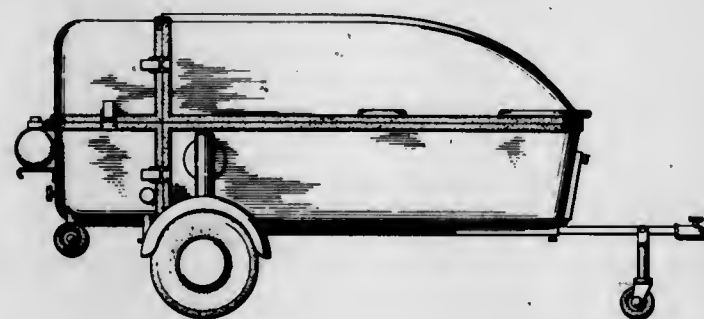
220,476
HANDRAILING
William J. Horgan, Jr., Pittsburgh, Pa., assignor to
Blumcraft of Pittsburgh, Pittsburgh, Pa.
Filed July 2, 1969, Ser. No. 18,032
Term of patent 14 years
Int. Cl. D25—01

U.S. Cl. D13—7



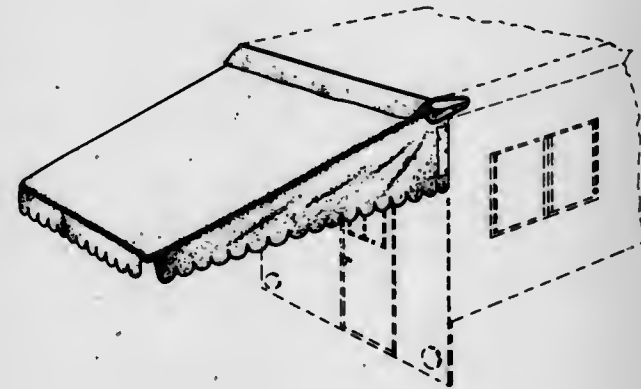
220,477
COMBINED BOAT, TRAILER, CAMPER AND COOKING UNIT
Morton W. Johnson, 4663 Capay Court 2,
San Jose, Calif. 95118
Filed Apr. 9, 1970, Ser. No. 22,345
Term of patent 14 years
Int. Cl. D12—10

U.S. Cl. D14—3



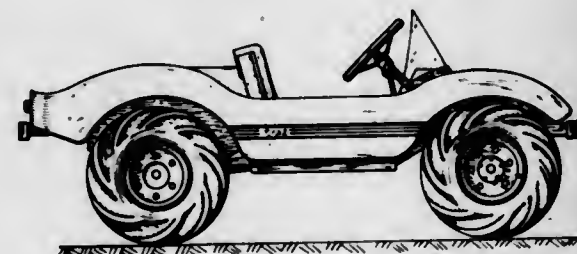
220,478
TRAILER AWNING UNIT
Charles D. Shelton, 8601 Cherry Lane,
Westminster, Colo. 80030
Filed Sept. 12, 1968, Ser. No. 13,514
Term of patent 14 years
Int. Cl. D12—14; D21—05

U.S. Cl. D14—3



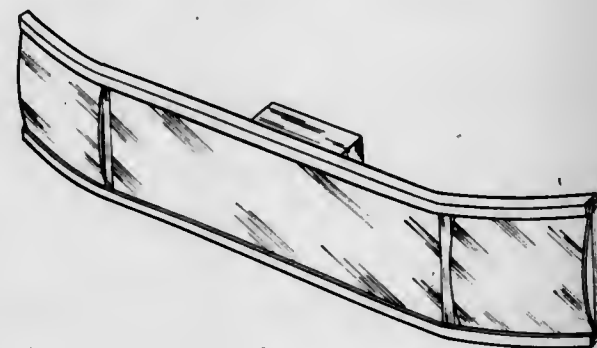
220,479
MOTOR VEHICLE
Edgar Blanchette, Drummondville South, Quebec, Can-
ada, assignor to Terrajet Inc., Drummondville South,
Quebec, Canada
Filed June 1, 1970, Ser. No. 23,229
Term of patent 3½ years
Int. Cl. D12—08

U.S. Cl. D14—3



220,480
AUTOMOBILE THREE WAY REAR AND SIDE VIEW MIRROR
Raymond B. Kesler, % Irving Seldman, 655 Madison
Ave., New York, N.Y. 10021
Filed July 7, 1969, Ser. No. 18,094
Term of patent 14 years
Int. Cl. D12—14

U.S. Cl. D14—6



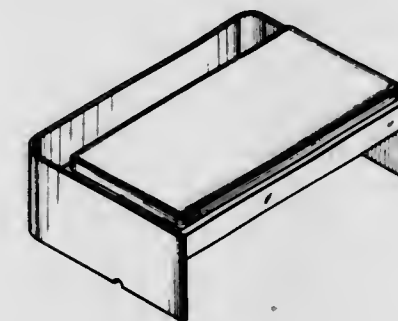
220,481
CHAIR
Eero Aarnio, Helsinki, Finland, assignor to
Asko Osakeyhtiö, Lahti, Finland
Filed May 6, 1968, Ser. No. 11,786
Term of patent 14 years
Int. Cl. D6—01

U.S. Cl. D15—1



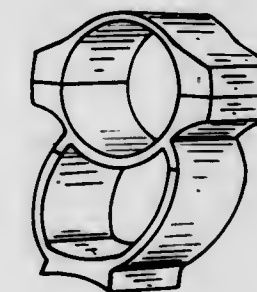
220,482
KNEELER
Kurt E. Landberg, St. Louis, Mo., assignor to Burks &
Landberg, Architects, St. Louis, Mo.
Filed Sept. 11, 1969, Ser. No. 19,109
Term of patent 14 years
Int. Cl. D6—01

U.S. Cl. D15—8



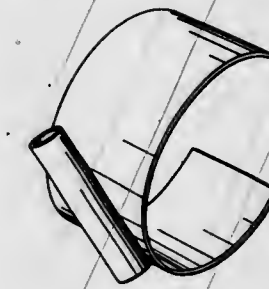
220,483
MOUNTING FOR A RIFLE TELESCOPIC SIGHT
Irving Rubin, 21781 Stratford, Oak Park, Mich. 48237,
and Ivan Jimenez, 1780 Outerlane Drive, Ypsilanti,
Mich. 48197
Filed Feb. 26, 1970, Ser. No. 21,641
Term of patent 14 years
Int. Cl. D22—02

U.S. Cl. D22—7



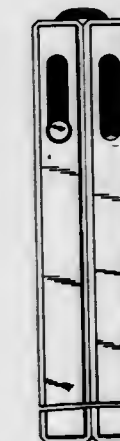
220,484
FISHING ROD HOLDER
Reaves F. Morris, 204 Bryd St.,
Oklahoma City, Okla. 73110
Filed May 28, 1970, Ser. No. 23,187
Term of patent 14 years
Int. Cl. D22—08

U.S. Cl. D22—22



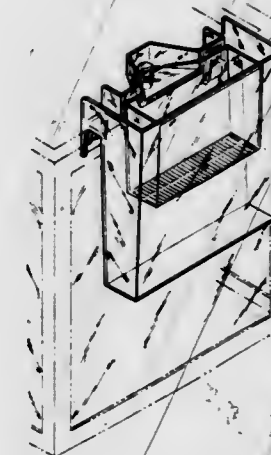
220,485
RESTRAINING DEVICE
Russell D. Hanke and Lawrence E. McDonald, South-
gate, Mich., assignors to Penguin Industries, Inc.,
Parksburg, Pa.
Filed Feb. 28, 1969, Ser. No. 15,968
Term of patent 14 years
Int. Cl. D22—99

U.S. Cl. D22—99



220,486
FILTER FOR HOME AQUARIUMS
Walter Sesholtz, Park Ridge, N.J., assignor to Sternco
Industries, Inc., Harrison, N.J.
Filed Apr. 10, 1970, Ser. No. 22,366
Term of patent 14 years
Int. Cl. D23—01

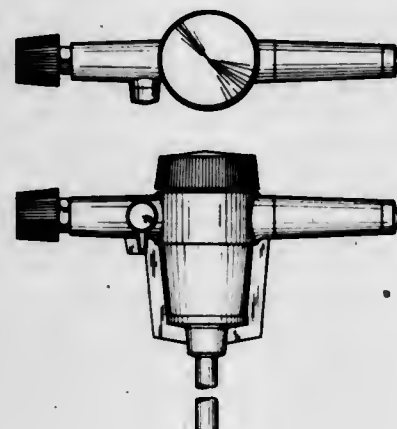
U.S. Cl. D23—4



220,487
ROOT FEEDER

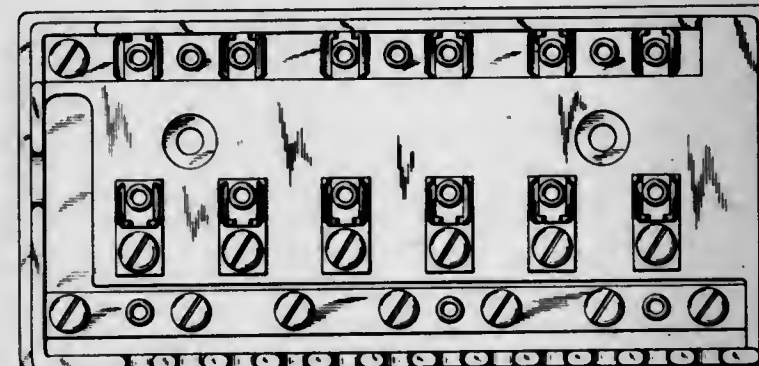
Don Wayne Doman, Janesville, Wis., assignor to Ross Daniels, Incorporated, West Des Moines, Iowa
Filed Oct. 29, 1969, Ser. No. 19,831
Term of patent 14 years
Int. Cl. D23—01

U.S. Cl. D23—10



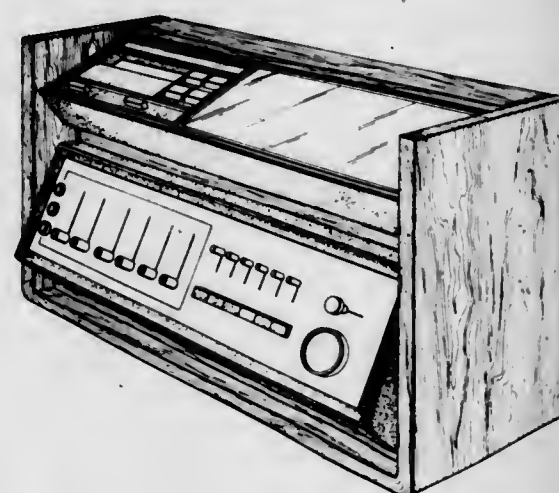
220,490
MARINE TERMINAL BLOCK
Lowell Abeles, 77 Zaccheus Mead Lane,
Greenwich, Conn. 06830
Filed Jan. 8, 1970, Ser. No. 20,832
Term of patent 14 years
Int. Cl. D13—03

U.S. Cl. D26—1



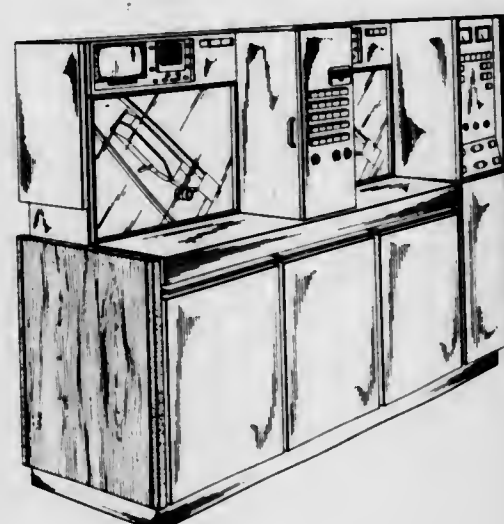
220,491
MAGNETIC TAPE CASSETTE TRANSPORT
Hari Matsuda, Evanston, Ill., assignor to Ampex Corporation, Redwood City, Calif.
Filed May 7, 1970, Ser. No. 22,877
Term of patent 14 years
Int. Cl. D14—02

U.S. Cl. D26—5



220,492
CASSETTE FEEDING APPARATUS
Darrell S. Staley, Santa Clara, Calif., assignor to Ampex Corporation, Redwood City, Calif.
Filed Apr. 1, 1970, Ser. No. 22,148
Term of patent 14 years
Int. Cl. D14—02

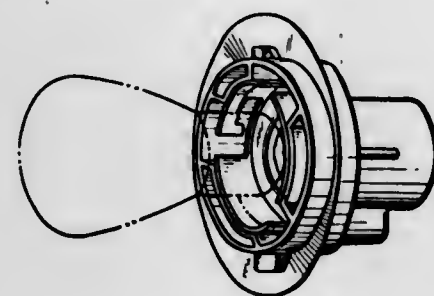
U.S. Cl. D26—5



220,489
VEHICLE LAMP SOCKET

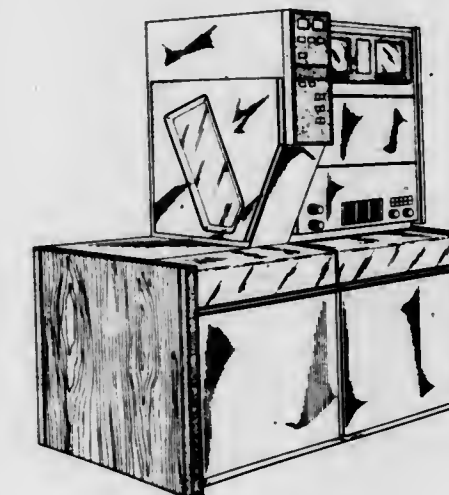
Takeshige Fujita and Tetsuo Tsuruta, Tokyo, Japan, assignors to Stanley Electric Co., Ltd., Tokyo, Japan
Filed Dec. 11, 1969, Ser. No. 20,450
Term of patent 14 years
Int. Cl. D13—03

U.S. Cl. D26—1



220,493
CASSETTE FEEDING APPARATUS
Darrell S. Staley, Santa Clara, Calif., assignor to Ampex Corporation, Redwood City, Calif.
Filed Apr. 1, 1970, Ser. No. 22,147
Term of patent 14 years
Int. Cl. D14—02, 03

U.S. Cl. D26—5



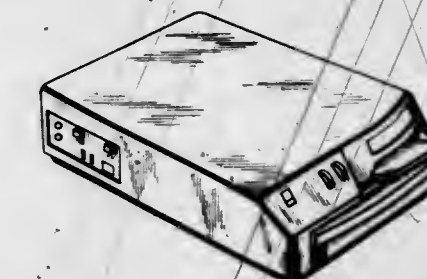
220,494
DISC MEMORY UNIT
Charles F. Grossman, Sunnyvale, Calif., assignor to Ampex Corporation, Redwood City, Calif.
Filed May 11, 1970, Ser. No. 22,905
Term of patent 14 years
Int. Cl. D14—02

U.S. Cl. D26—5



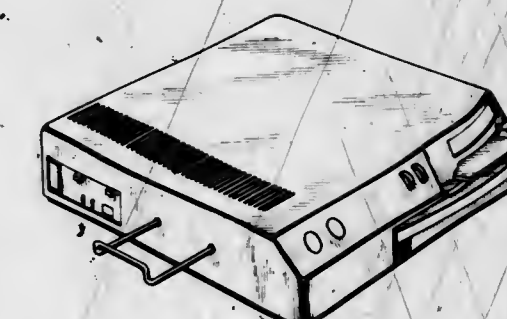
220,495
DICTATING MACHINE OR THE LIKE
Christoph Egli and Alfons Boothby, Wilhelmshaven, Germany, assignors to Olympia Werke AG, Wilhelmshaven, Germany
Filed Dec. 24, 1969, Ser. No. 20,643
Claims priority, application Germany June 27, 1969
Term of patent 14 years
Int. Cl. D14—01

U.S. Cl. D26—14



220,496
DICTATING MACHINE WITH EXTENSIBLE MICROPHONE RACK OR THE LIKE
Christoph Egli and Alfons Boothby, Wilhelmshaven, Germany, assignors to Olympia Werke AG, Wilhelmshaven, Germany
Filed Dec. 24, 1969, Ser. No. 20,644
Claims priority, application Germany June 27, 1969
Term of patent 14 years
Int. Cl. D14—01

U.S. Cl. D26—14



220,497

**MICROPHONE FOR DICTATING MACHINE
OR THE LIKE**
Christoph Egli and Alfons Boothby, Wilhelmshaven, Germany, assignors to Olympia Werke AG, Wilhelmshaven, Germany

Filed Dec. 24, 1969, Ser. No. 20,645
Claims priority, application Germany June 27, 1969
Term of patent 14 years
Int. Cl. D14-01

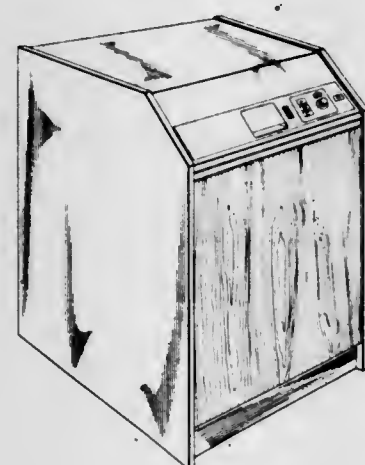
U.S. Cl. D26-14



220,498

MAGNETIC TAPE CASSETTE DUPLICATOR
Darrell S. Staley, Santa Clara, Calif., assignor to Ampex Corporation, Redwood City, Calif.
Filed Apr. 17, 1970, Ser. No. 22,493
Term of patent 14 years
Int. Cl. D14-02

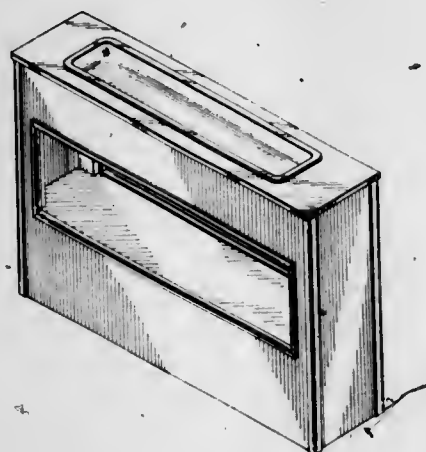
U.S. Cl. D26-14



220,499

COMBINED PLANTER AND BOOKCASE
John W. Sciortino, 255 W. 96th St., Apt. 1G, Bloomington, Minn. 55420
Filed Feb. 19, 1970, Ser. No. 21,514
Term of patent 14 years
Int. Cl. D6-01

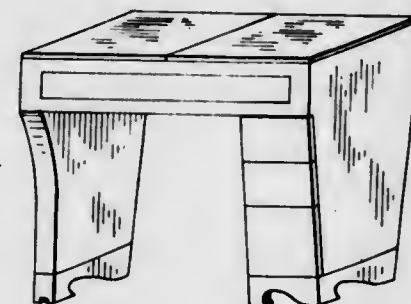
U.S. Cl. D33-2



220,500

SEWING MACHINE CABINET
Aubrey M. Chisholm, Box 91, Woodrow, Saskatchewan, Canada
Filed Apr. 4, 1969, Ser. No. 16,578
Term of patent 14 years
Int. Cl. D6-01

U.S. Cl. D33-12



220,501

SITTING KITTY DOLL
Nancy J. Ott, 33879 Nebraska Lane, Yucaipa, Calif. 92399
Filed Feb. 9, 1970, Ser. No. 21,360
Term of patent 14 years
Int. Cl. D21-02

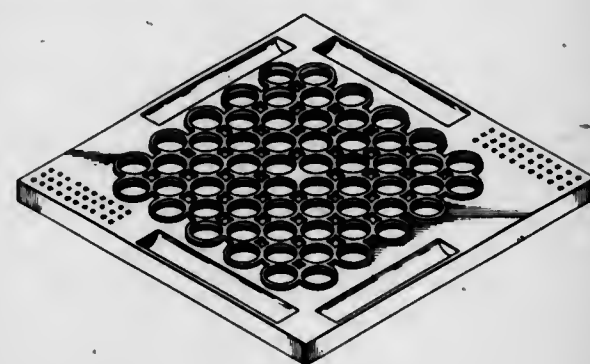
U.S. Cl. D34-2



220,502

GAME BOARD
Phyllis Frederick and Peter H. Justin, Plainfield, N.J., assignors to Mattel, Inc., Hawthorne, Calif.
Filed Feb. 26, 1970, Ser. No. 21,655
Term of patent 14 years
Int. Cl. D21-01

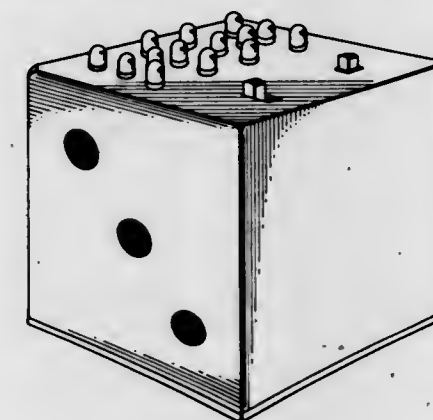
U.S. Cl. D34-5



220,503

DICE GAME BOX
Donald E. Church, Richmond, Ind., assignor to Avco Corporation, Richmond, Ind.
Filed Dec. 17, 1969, Ser. No. 20,533
Term of patent 14 years
Int. Cl. D21-02

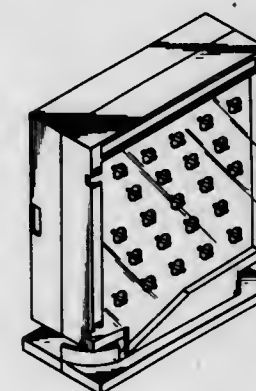
U.S. Cl. D34-5



220,504

GAME CASING
Derek J. Gay, Palos Verdes Peninsula, Calif., assignor to Mattel, Inc., Hawthorne, Calif.
Filed Feb. 26, 1970, Ser. No. 21,651
Term of patent 14 years
Int. Cl. D21-01

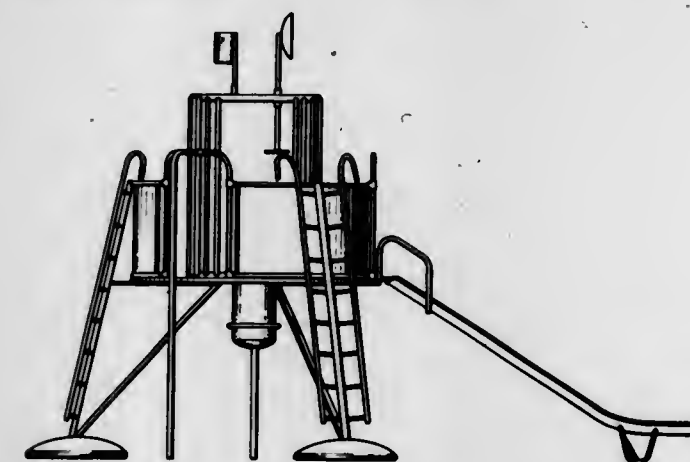
U.S. Cl. D34-5



220,505

**COMBINED PLAYGROUND CLIMBER
AND SLIDE**
Ronald W. Zick, Jonesville, Mich., assignor to Game Time, Inc., Litchfield, Mich.
Filed Mar. 19, 1970, Ser. No. 21,984
Term of patent 14 years
Int. Cl. D21-03

U.S. Cl. D34-5



220,506

GOLF PUTTER
Robert J. Mader, Torrance, Calif., assignor to Wilson Sporting Goods Co.
Filed Dec. 8, 1969, Ser. No. 20,392
Term of patent 14 years
Int. Cl. D21-03

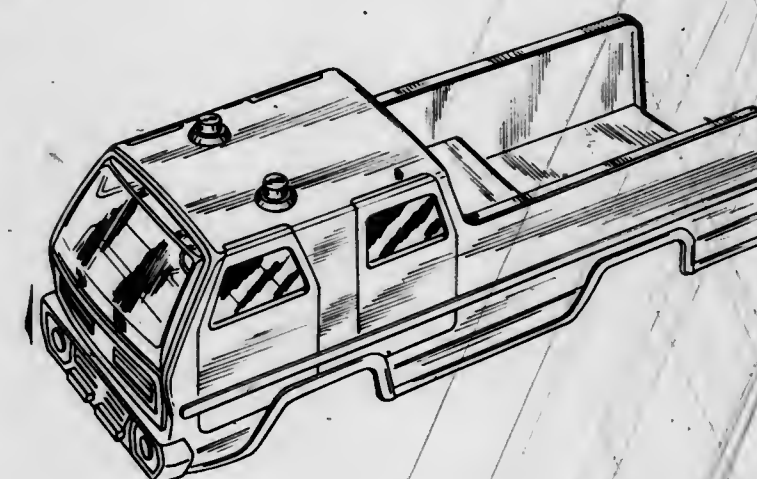
U.S. Cl. D34-5



220,507

TOY FIRE TRUCK BODY
Vernon A. Peterson, Minneapolis, Minn., assignor to Tonka Corporation, Mound, Minn.
Filed June 25, 1970, Ser. No. 23,672
Term of patent 7 years
Int. Cl. D21-02

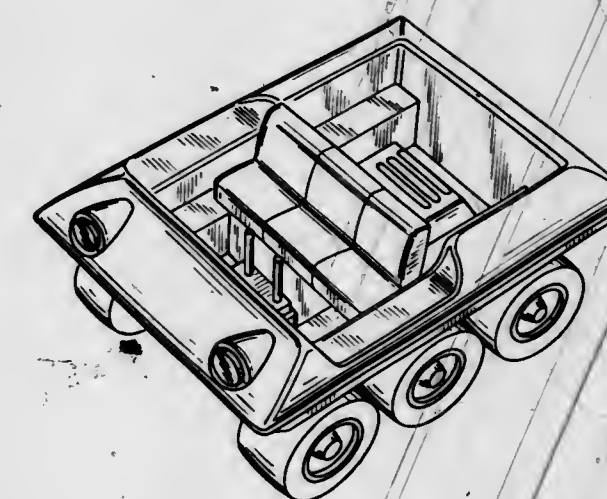
U.S. Cl. D34-15



220,508

ALL-TERRAIN VEHICLE TOY
Thomas W. Good, Golden Valley, Minn., assignor to Tonka Corporation, Mound, Minn.
Filed June 29, 1970, Ser. No. 23,696
Term of patent 7 years
Int. Cl. D21-02

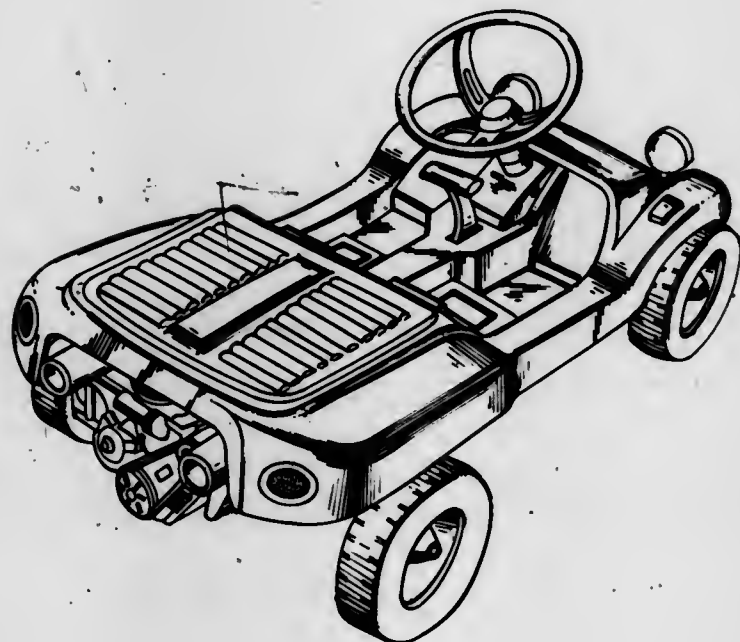
U.S. Cl. D34-15



220,509
CHILD'S RIDING TOY

Viktor Schreckengost, Cleveland, Ohio, assignor to The Murray Ohio Manufacturing Co., Nashville, Tenn.
Filed Mar. 3, 1970, Ser. No. 21,711
Term of patent 14 years
Int. Cl. D21-02

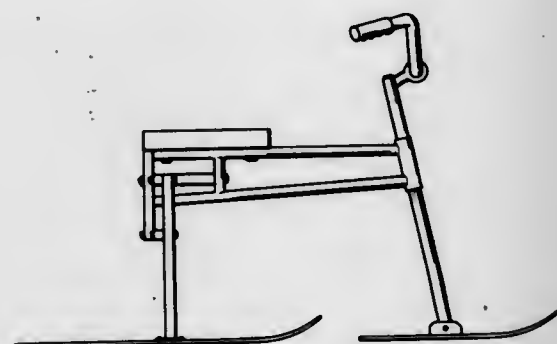
U.S. Cl. D34-15



220,511
SKI-CYCLE

Paul Janos, Box 991, Glenwood Springs, Aspen, Colo. 81611
Filed Sept. 8, 1969, Ser. No. 19,052
Term of patent 14 years
Int. Cl. D21-03

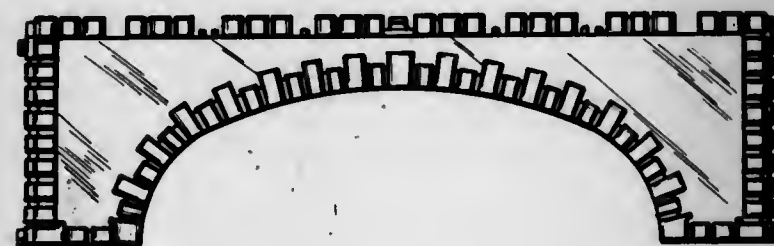
U.S. Cl. D34-15



220,512
TOY BRIDGE

Robert M. Gutz, Los Angeles, Calif., assignor to Mattel, Inc., Hawthorne, Calif.
Filed Feb. 19, 1970, Ser. No. 21,522
Term of patent 14 years
Int. Cl. D21-02

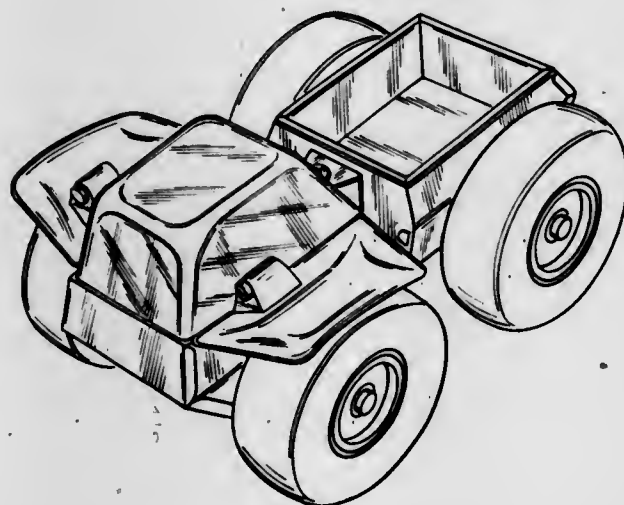
U.S. Cl. D34-15



220,510
TOY VEHICLE

Thomas W. Good, Golden Valley, Minn., assignor to Tonka Corporation, Mound, Minn.
Filed June 29, 1970, Ser. No. 23,695
Term of patent 3 1/2 years
Int. Cl. D21-02

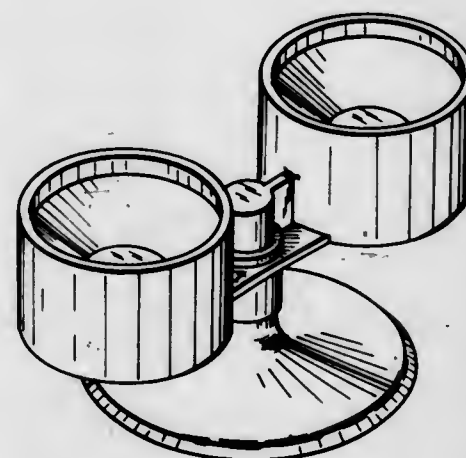
U.S. Cl. D34-15



220,513
ROTATABLE RECEPTACLE PIECE FOR TOY TOPS OR THE LIKE

Anthony D. Miller, Torrance, Calif., assignor to Mattel, Inc., Hawthorne, Calif.
Filed Jan. 20, 1970, Ser. No. 20,999
Term of patent 14 years
Int. Cl. D21-02

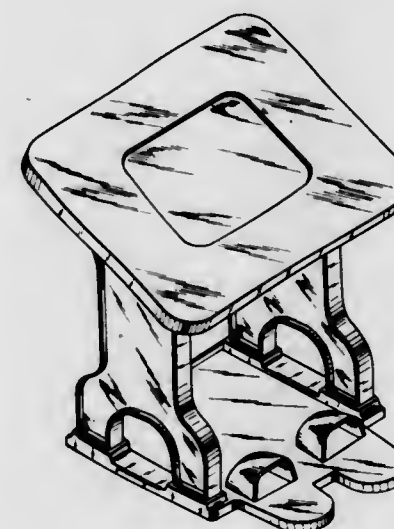
U.S. Cl. D34-15



220,514
DRAWING STAND FOR A DOLL OR THE LIKE

Raymond J. Douglas, Lomita, and Cyril Gordon Shireman, Rolling Hills Estates, Calif., assignors to Mattel, Inc., Hawthorne, Calif.
Filed Jan. 20, 1970, Ser. No. 21,000
Term of patent 14 years
Int. Cl. D21-02

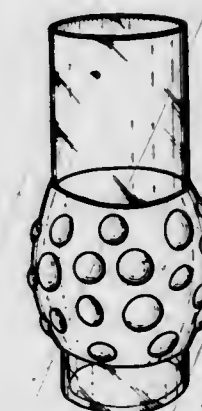
U.S. Cl. D34-15



220,516
DRINKING GLASS OR THE LIKE

Johannes Klobner, Schwelm, Westphalia, Germany, assignor to Firma Hans Klobner, Schwelm, Westphalia, Germany
Original design application Apr. 16, 1969, Ser. No. 16,765. Divided and this application May 1, 1970, Ser. No. 22,755
Claims priority, application Germany Nov. 25, 1968
Term of patent 14 years
Int. Cl. D7-01

U.S. Cl. D36-8



220,515
COMBINED FLOWER POT HOLDER AND BRACKET THEREFOR

William H. Michaels, 3568 Independence Road, Cleveland, Ohio 44105
Original design application Feb. 27, 1968, Ser. No. 10,743, now Patent No. 212,959, dated Dec. 17, 1968. Divided and this application July 26, 1968, Ser. No. 13,617
Term of patent 14 years
Int. Cl. D11-02

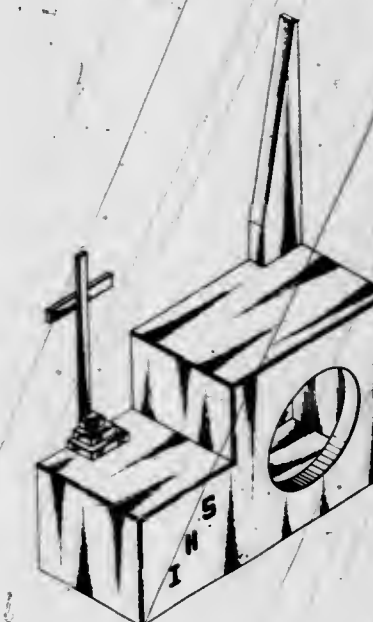
U.S. Cl. D35-3



220,517
CLOCK CABINETS

Virgil C. Welch, 4943 Huntington, Lincoln, Nebr. 68504
Filed Aug. 8, 1969, Ser. No. 18,593
Term of patent 7 years
Int. Cl. D10-01

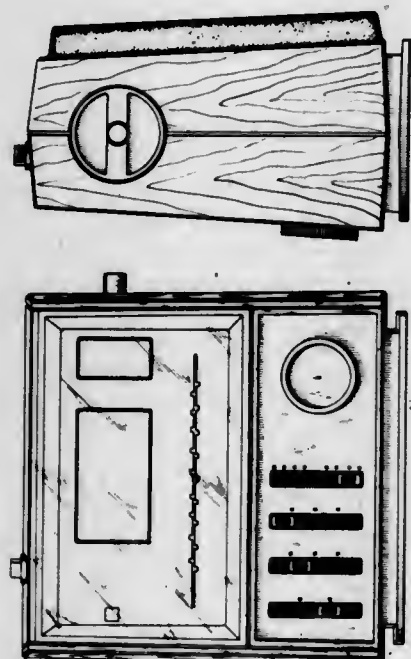
U.S. Cl. D42-7



220,518

FM/AM CLOCK RADIO
Andrew Kalnass, Syracuse, N.Y., assignor to
General Electric Company
Filed June 25, 1970, Ser. No. 23,675
Term of patent 14 years
Int. Cl. D10-01

U.S. Cl. D42-7



220,520

PLATE OR THE LIKE
Ottorino N. Mercadante, Corning, N.Y., assignor to
Corning Glass Works, Corning, N.Y.
Filed May 1, 1970, Ser. No. 22,759
Term of patent 14 years
Int. Cl. D7-01

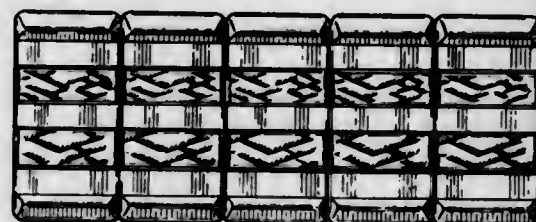
U.S. Cl. D44-15



220,521

EXPANSIBLE LINK CHAIN FOR A BRACELET
OR SIMILAR ARTICLE
Murray L. Cowan, Norwood, Mass., assignor to
Textron Inc., Providence, R.I.
Filed Apr. 23, 1970, Ser. No. 22,585
Term of patent 14 years
Int. Cl. D11-01

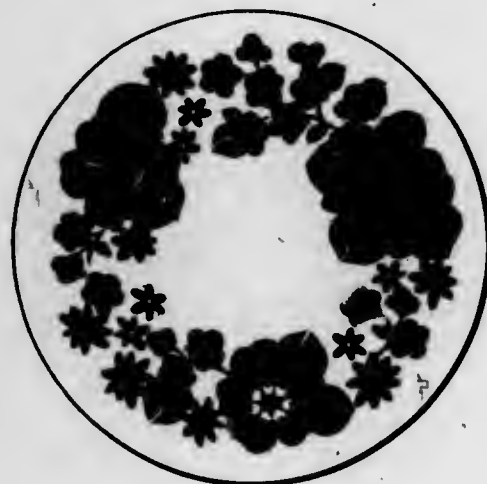
U.S. Cl. D45-4



220,519

PLATE OR THE LIKE
Cynthia S. Gerow, Syracuse, N.Y., assignor to
Corning Glass Works, Corning, N.Y.
Filed May 12, 1970, Ser. No. 22,934
Term of patent 14 years
Int. Cl. D7-01

U.S. Cl. D44-15



220,522

EXPANSIBLE LINK CHAIN FOR A BRACELET,
OR SIMILAR ARTICLE
Murray L. Cowan, Norwood, Mass., assignor to
Textron Inc., Providence, R.I.
Filed Apr. 21, 1970, Ser. No. 22,546
Term of patent 14 years
Int. Cl. D11-01

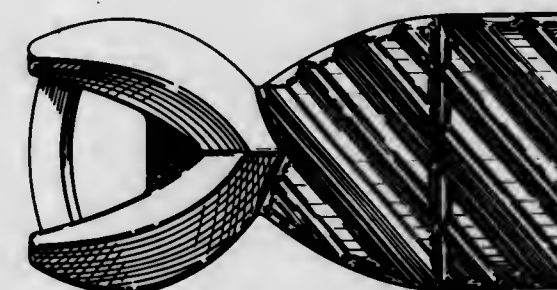
U.S. Cl. D45-4



220,523

END LINK FOR A BRACELET OR
SIMILAR ARTICLE
Murray L. Cowan, Norwood, Mass., assignor to
Textron Inc., Providence, R.I.
Filed Apr. 8, 1970, Ser. No. 22,321
Term of patent 14 years
Int. Cl. D11-01

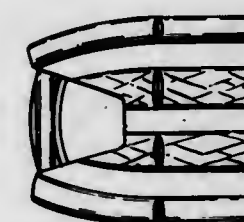
U.S. Cl. D45-4



220,524

END LINK FOR A BRACELET OR
SIMILAR ARTICLE
Murray L. Cowan, Norwood, Mass., assignor to
Textron Inc., Providence, R.I.
Filed Mar. 30, 1970, Ser. No. 22,126
Term of patent 14 years
Int. Cl. D11-01

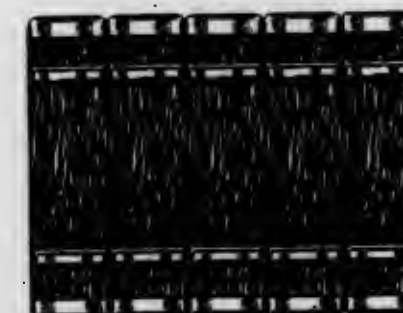
U.S. Cl. D45-4



220,525

EXPANSIBLE LINK CHAIN FOR A BRACELET
OR SIMILAR ARTICLE
Murray L. Cowan, Norwood, Mass., assignor to
Textron Inc., Providence, R.I.
Filed May 5, 1970, Ser. No. 22,814
Term of patent 14 years
Int. Cl. D11-01

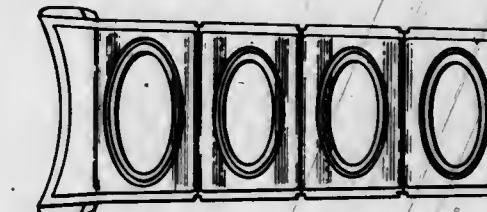
U.S. Cl. D45-4



220,526

EXPANSIBLE END LINK FOR A BRACELET
OR SIMILAR ARTICLE
Murray L. Cowan, Norwood, Mass., assignor to
Textron Inc., Providence, R.I.
Filed May 4, 1970, Ser. No. 22,784
Term of patent 14 years
Int. Cl. D11-01

U.S. Cl. D45-4



220,527

EXPANSIBLE LINK CHAIN FOR A BRACELET
OR SIMILAR ARTICLE
Raymond C. Fontaine, Providence, R.I., assignor to
Textron Inc., Providence, R.I.
Filed Mar. 23, 1970, Ser. No. 22,027
Term of patent 14 years
Int. Cl. D11-01

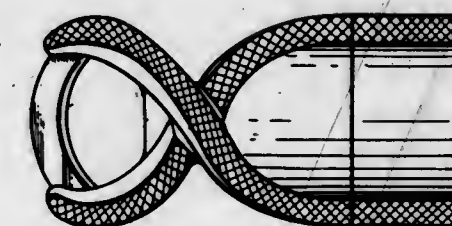
U.S. Cl. D45-4



220,528

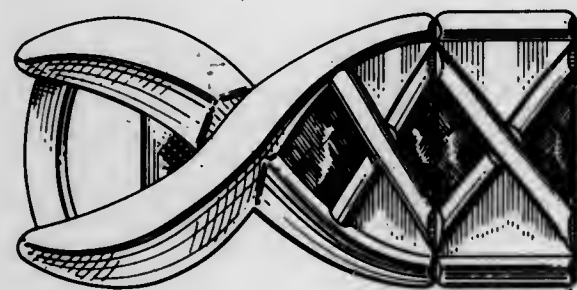
END LINK FOR A BRACELET OR
SIMILAR ARTICLE
Raymond C. Fontaine, Greenville, R.I., assignor to
Textron Inc., Providence, R.I.
Filed Mar. 23, 1970, Ser. No. 22,003
Term of patent 14 years
Int. Cl. D11-01

U.S. Cl. D45-4



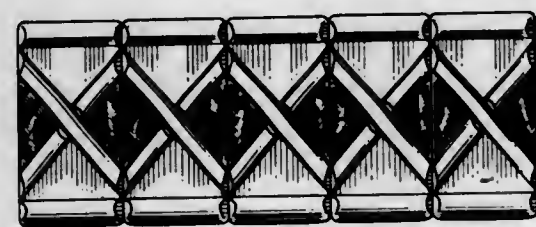
220,529
END LINK FOR A BRACELET OR
SIMILAR ARTICLE
 Murray L. Cowan, Norwood, Mass., assignor to
 Textron Inc., Providence, R.I.
 Filed May 4, 1970, Ser. No. 22,802
 Term of patent 14 years
 Int. Cl. D11—01

U.S. Cl. D45—4



220,530
EXPANSIBLE LINK CHAIN FOR A BRACELET
OR SIMILAR ARTICLE
 Murray L. Cowan, Norwood, Mass., assignor to
 Textron Inc., Providence, R.I.
 Filed May 4, 1970, Ser. No. 22,792
 Term of patent 14 years
 Int. Cl. D11—01

U.S. Cl. D45—4



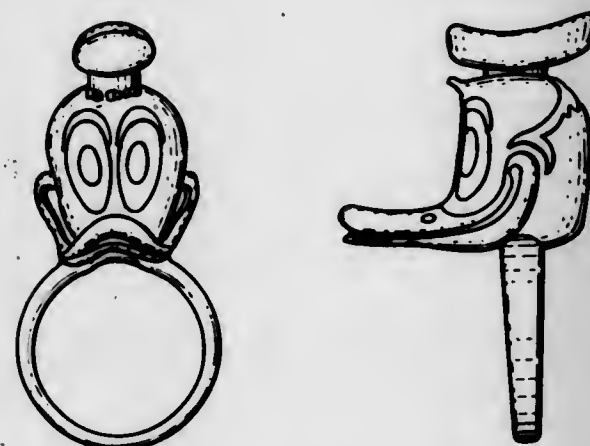
220,531
LIGHT STANDARD OR SIMILAR ARTICLE
 Robert W. Selden, Seattle, Wash., assignor to
 Weyerhaeuser Company, Tacoma, Wash.
 Filed Oct. 20, 1969, Ser. No. 19,636
 Term of patent 14 years
 Int. Cl. D26—03

U.S. Cl. D48—31



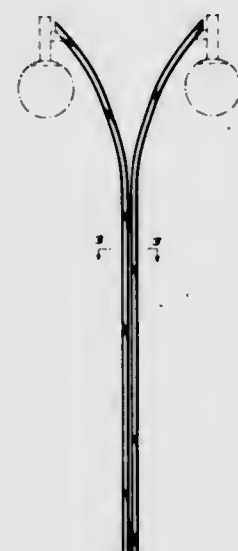
220,532
RING
 Charles J. Mineo, 39—50 65th Place,
 Woodside, N.Y. 11377
 Filed Jan. 27, 1970, Ser. No. 21,105
 Term of patent 14 years
 Int. Cl. D11—01

U.S. Cl. D45—10



220,533
LIGHT STANDARD OR SIMILAR ARTICLE
 Robert W. Selden, Seattle, Wash., assignor to
 Weyerhaeuser Company, Tacoma, Wash.
 Filed Oct. 20, 1969, Ser. No. 19,631
 Term of patent 14 years
 Int. Cl. D26—03

U.S. Cl. D48—31



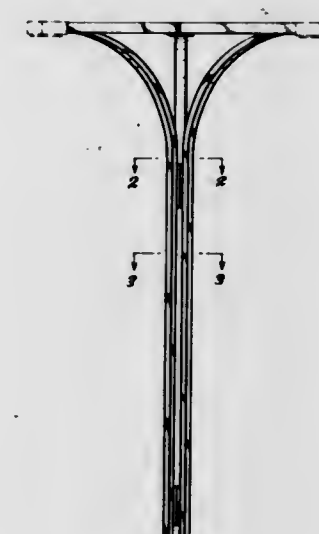
220,534
LIGHT STANDARD OR SIMILAR ARTICLE
 Robert W. Selden, Seattle, Wash., assignor to
 Weyerhaeuser Company, Tacoma, Wash.
 Filed Oct. 20, 1969, Ser. No. 19,629
 Term of patent 14 years
 Int. Cl. D26—03

U.S. Cl. D48—31



220,535
LIGHT STANDARD OR SIMILAR ARTICLE
 Robert W. Selden, Seattle, Wash., assignor to
 Weyerhaeuser Company, Tacoma, Wash.
 Filed Oct. 20, 1969, Ser. No. 19,615
 Term of patent 14 years
 Int. Cl. D26—03

U.S. Cl. D48—31



220,536
LIGHT STANDARD OR SIMILAR ARTICLE
 Robert W. Selden, Seattle, Wash., assignor to
 Weyerhaeuser Company, Tacoma, Wash.
 Filed Oct. 20, 1969, Ser. No. 19,616
 Term of patent 14 years
 Int. Cl. D26—03

U.S. Cl. D48—31



220,537
CANISTER VACUUM CLEANER OR
SIMILAR ARTICLE
 George D. La Police, Somerville, and Wayne A. Current,
 Cranford, N.J., and Craig R. Newburgh, Jamaica, N.Y.,
 assignors to The Singer Company, New York, N.Y.
 Filed Jan. 7, 1970, Ser. No. 20,792
 Term of patent 14 years
 Int. Cl. D15—07

U.S. Cl. D49—14.1



220,538
CASH REGISTER

Elmer J. Stoltz, Castro Valley, and William J. Wohltmann, Jr., Mountain View, Calif., assignors to The Singer Company, New York, N.Y.
Filed Dec. 1, 1969, Ser. No. 20,327
Term of patent 14 years
Int. Cl. D20-99

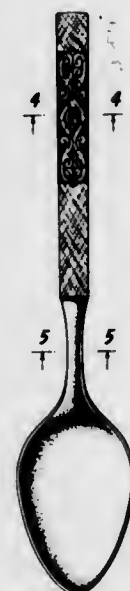
U.S. Cl. D52-4



220,540
SPOON OR SIMILAR ARTICLE

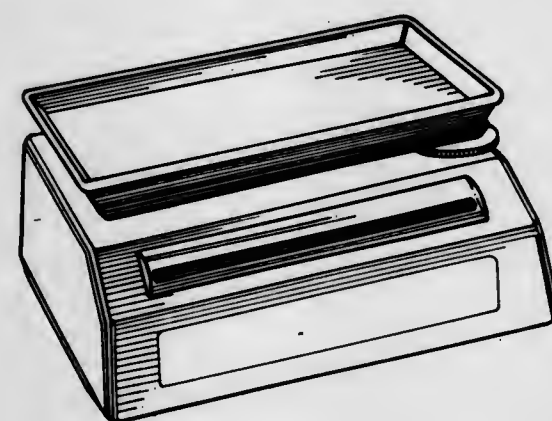
Ellen B. Manderfield, Syracuse, N.Y., assignor to Oneida Ltd., Oneida, N.Y.
Filed Apr. 20, 1970, Ser. No. 22,534
Term of patent 14 years
Int. Cl. D7-03

U.S. Cl. D54-12



220,539
FOOD WEIGHING SCALE
Ralph R. Dillon, Van Nuys, Calif., assignor to Scale Data Systems, Inc.
Filed Feb. 9, 1970, Ser. No. 21,369
Term of patent 14 years
Int. Cl. D10-99

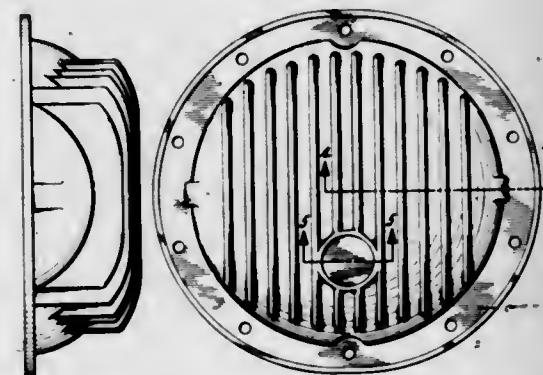
U.S. Cl. D52-10



220,541
VEHICLE DIFFERENTIAL HOUSING

Michael D. Liddiard, 242 W. Klo Road, Lathrop, Calif. 95330
Filed Feb. 11, 1970, Ser. No. 21,375
Term of patent 14 years
Int. Cl. D15-99

U.S. Cl. D55-1



220,542
DRUMSTICK

Michael F. Russell, 2451 Greenwood Road, Lapeer, Mich. 48846
Filed Jan. 15, 1970, Ser. No. 20,932
Term of patent 14 years
Int. Cl. D17-04

U.S. Cl. D56-1



220,545
PHONOGRAPH RECORD CHANGER

John D. Yair, Halesowen, England, assignor to BSR (U.S.A.) Limited, Blauvelt, N.Y.
Filed Dec. 11, 1969, Ser. No. 20,467
Term of patent 14 years
Int. Cl. D14-01

U.S. Cl. D56-4

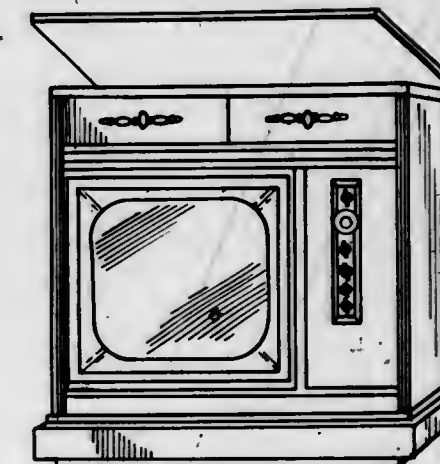


220,546
COMBINED RADIO, PHONOGRAPH AND TELEVISION CONSOLE

Daniel J. Domin, Deerfield, and Thomas E. Duvall, Morton Grove, Ill., assignors to TMA Company, Wheeling, Ill.

Filed Dec. 24, 1969, Ser. No. 20,625
Term of patent 14 years
Int. Cl. D14-03

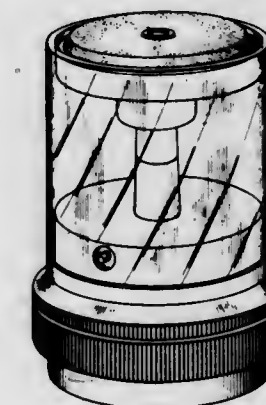
U.S. Cl. D56-4



220,543
RADIO

Stefan A. Unger, Chicago, Ill., assignor to General Electric Company
Filed Dec. 10, 1969, Ser. No. 20,430
Term of patent 14 years
Int. Cl. D14-03

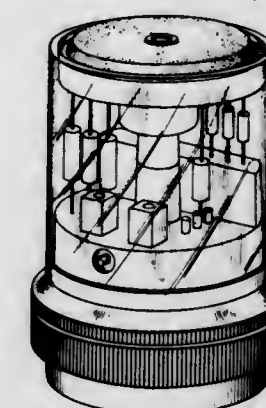
U.S. Cl. D56-4



220,544
RADIO

Stefan A. Unger, Chicago, Ill., assignor to General Electric Company
Filed Dec. 10, 1969, Ser. No. 20,432
Term of patent 14 years
Int. Cl. D14-03

U.S. Cl. D56-4

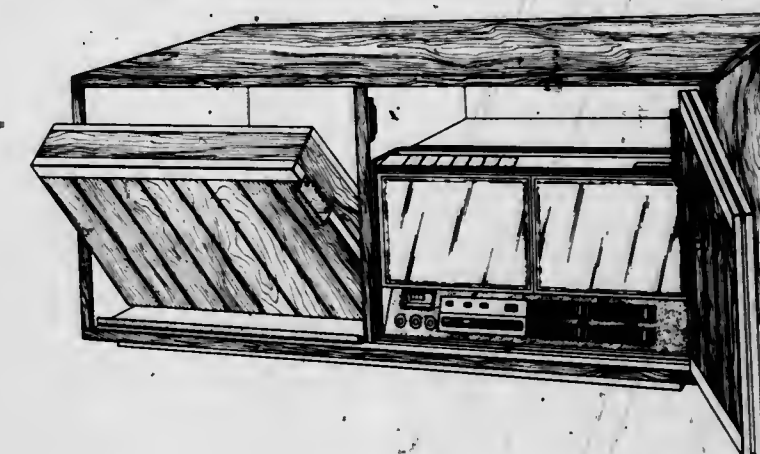


220,547
COMBINED PHONOGRAPH AND RADIO OR SIMILAR ARTICLE

Donald E. Leman, Rosemont, Ill., assignor to Ampex Corporation, Redwood City, Calif.

Filed May 8, 1970, Ser. No. 22,899
Term of patent 14 years
Int. Cl. D14-03

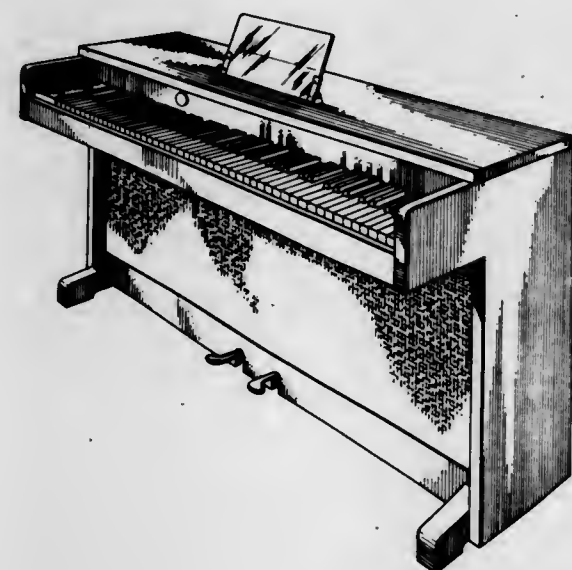
U.S. Cl. D56-4



220,548
ELECTROPIANO

Robert L. Ferris and Daniel W. Martin, Cincinnati, Ohio,
assignors to D. H. Baldwin Company, Cincinnati, Ohio
Filed June 24, 1969, Ser. No. 17,850
Term of patent 14 years
Int. Cl. D17-01

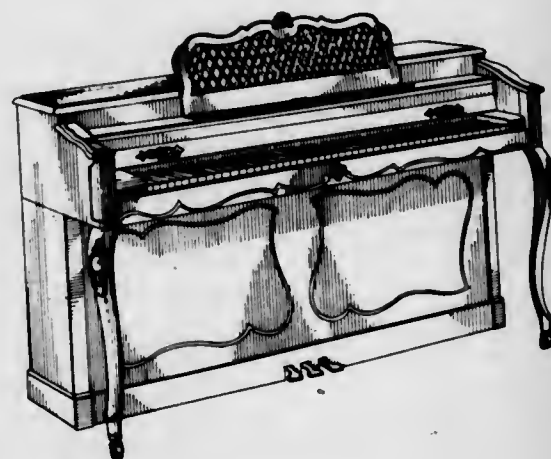
U.S. Cl. D56-9



220,550
PIANO

Winsor D. White, Jr., Blowing Rock, N.C., assignor to
D. H. Baldwin Company, Cincinnati, Ohio
Filed Feb. 24, 1970, Ser. No. 21,585
Term of patent 14 years
Int. Cl. D17-01

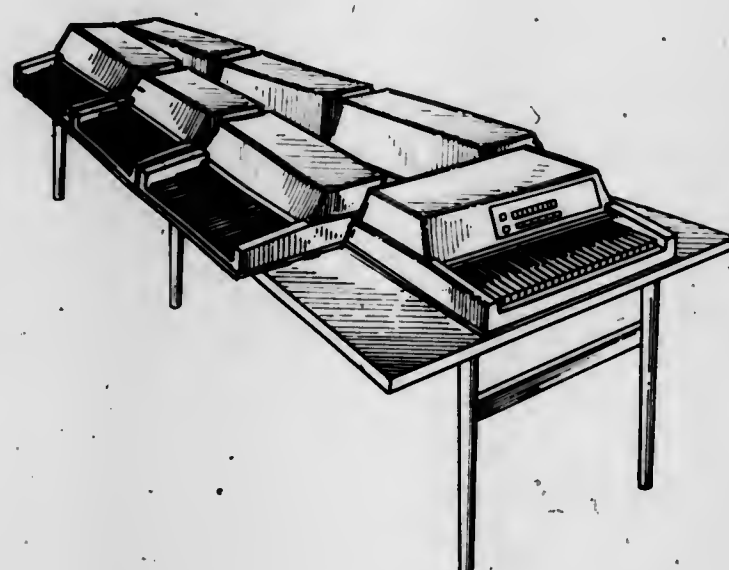
U.S. Cl. D56-9



220,549
**MULTIPLE KEYBOARD MUSIC TEACHING
APPARATUS OR SIMILAR ARTICLE**

Kenneth G. Benson, Sycamore, Ill., assignor to The
Wurlitzer Company, Chicago, Ill.
Filed Nov. 28, 1969, Ser. No. 20,310
Term of patent 14 years
Int. Cl. D17-01

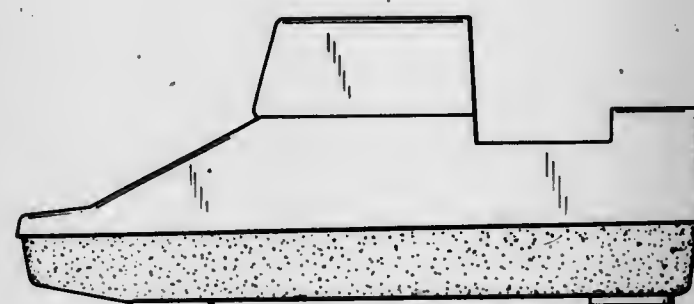
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220,551
HOUSING FOR A TYPEWRITER

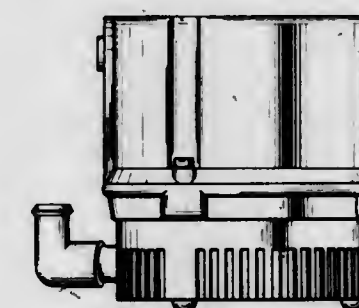
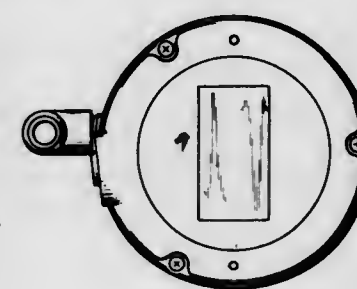
Alfons Boothby and Georges Joseph, Wilhelmshaven, Ger-
many, assignors to Olympia Werke AG, Wilhelmshaven,
Germany
Filed Sept. 17, 1969, Ser. No. 19,192
Claims priority, application Germany Apr. 14, 1969
Term of patent 14 years
Int. Cl. D18-01

U.S. Cl. D64-11



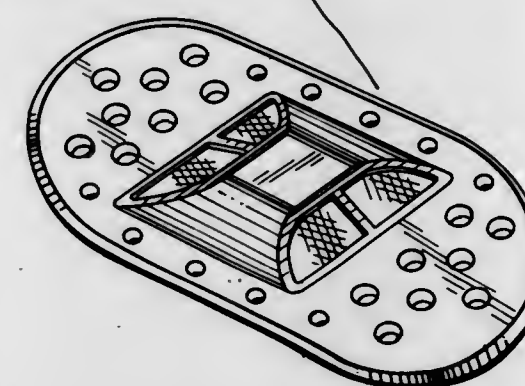
220,552
COMBINED PUMP AND INLET SCREEN
Lee W. Davis, Oklahoma City, Okla., assignor to Little
Giant Corporation, Oklahoma City, Okla.
Filed Sept. 10, 1969, Ser. No. 19,097
Term of patent 14 years
Int. Cl. D15-02

U.S. Cl. D65-1



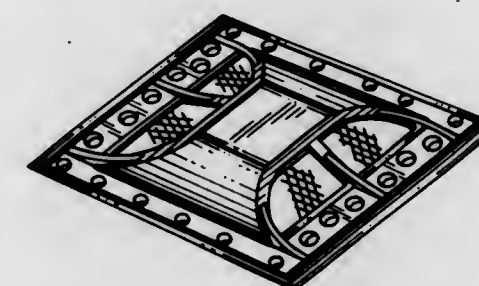
220,553
ROADWAY MARKER
Peter Hedgewick, Windsor, Ontario, Canada, assignor to
Reflex Corporation of Canada Limited, Amherstburg,
Ontario, Canada
Filed Jan. 12, 1970, Ser. No. 20,896
Term of patent 7 years
Int. Cl. D29-99

U.S. Cl. D72-1



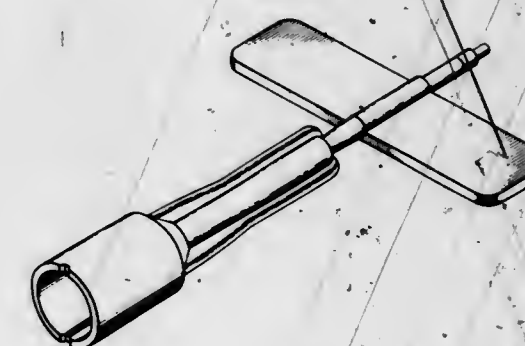
220,554
ROADWAY MARKER
Peter Hedgewick, Windsor, Ontario, Canada, assignor to
Reflex Corporation of Canada Limited, Amherstburg,
Ontario, Canada
Filed Jan. 12, 1970, Ser. No. 20,899
Term of patent 14 years
Int. Cl. D29-99

U.S. Cl. D72-1



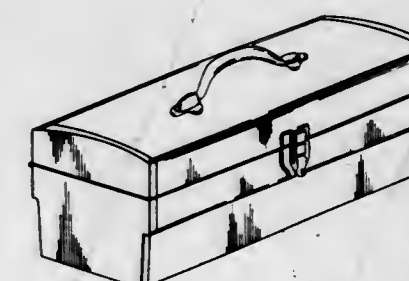
220,555
**COMBINED HANDLE AND PROTECTOR UNIT FOR
A MEDICAL INFUSION NEEDLE**
Donald R. Reiterman, Sierra Madre, Calif., assignor to
American Hospital Supply Corporation, Evanston, Ill.
Filed Apr. 16, 1970, Ser. No. 22,470
Term of patent 14 years
Int. Cl. D24-03

U.S. Cl. D83-12



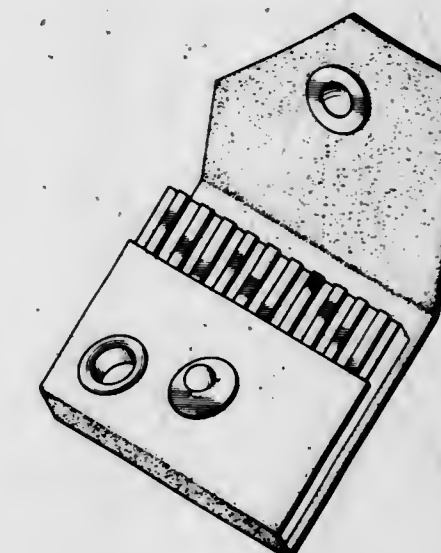
220,556
TOOL BOX OR SIMILAR ARTICLE
Jack Evans, Grant Park, Ill. 60940
Filed Feb. 4, 1969, Ser. No. 15,616
Term of patent 14 years
Int. Cl. D3-99

U.S. Cl. D87-1



220,557
COMBINED ELECTRICAL KEY AND CASE
Alfiero F. Balzano, Los Angeles, Calif., assignor to Digital
Identification Systems, Inc., Sun Valley, Calif.
Filed Dec. 12, 1969, Ser. No. 20,484
Term of patent 14 years
Int. Cl. D3-99

U.S. Cl. D87-8



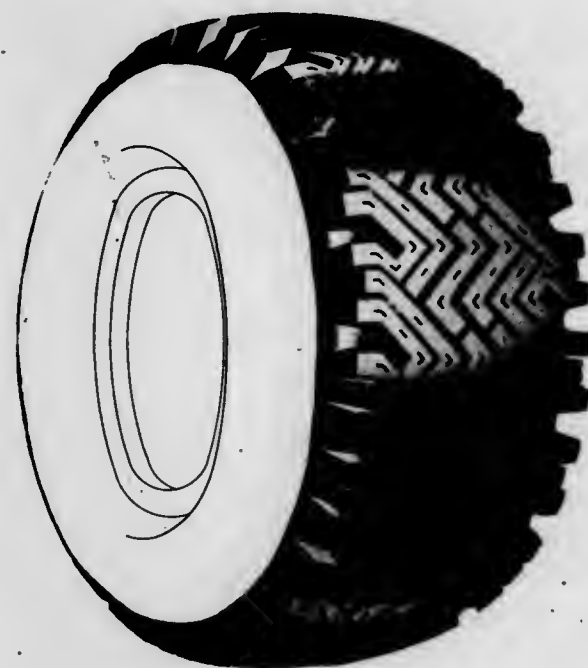
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TIREArmand V. Pedrosa, Barberton, Ohio, assignor to The
B. F. Goodrich Company, New York, N.Y.

Filed Nov. 21, 1969, Ser. No. 20,217

Term of patent 14 years

Int. Cl. D12-14

U.S. Cl. D90-20

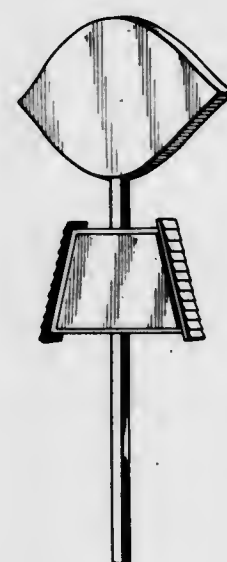
220,559
SIGNJames T. Hight, Darien, Conn., assignor to American
Dairy Queen Corporation, Minneapolis, Minn.

Filed Mar. 21, 1969, Ser. No. 16,360

Term of patent 14 years

Int. Cl. D20-03

U.S. Cl. D96-12



LIST OF PATENTEES

TO WHOM

PATENTS WERE ISSUED ON THE 20TH DAY OF APRIL, 1971

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- Acrow (Automation) Limited: See—
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- Adajian, Michael, to Dynamics Corporation of America. Air foil fan. 3,575,524, Cl. 415-213.
- Adler, James: See—
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- Aguilar, Ralph. Go go wheel coaster. 3,575,443, Cl. 280-206.
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- Albert, Harry Elmer, to Pennwalt Corporation. Short stopping synthetic rubber polymerization with hydroquinone tertiary amine oxide compound. 3,575,912, Cl. 260-29.7
- Albertson, Leo H. Bale handling vehicle. 3,575,310, Cl. 214-522.
- Albrecht, Harry Allen; and Plati, John Thomas, to Hoffmann-La Roche Inc. Amino isoxazoles. 3,575,995, Cl. 260-307.
- Albright, Jay Donald; and Goldman, Leon, to American Cyanamid Company. Novel ring-E substituted 4-cyano-3- secoyohimbanes. 3,576,004, Cl. 260-326.3
- Aldern, Alan N.: See—
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- Allen-Bradley Company: See—
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- Alley, Raymond L., to American Warming & Ventilating, Inc., The. Smoke seal for curtain type fire dampers. 3,575,229, Cl. 160-1.
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- Alpine, Albert Earl, to Certain-Teed Products Corporation. Pipe joint packing ring having means limiting assembly movement. 3,575,430, Cl. 277-168.
- Alsgaard, Richard W., to Dow Corning Corporation. Alkylidiphenylsilanes. 3,576,030, Cl. 260-448.2
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- Andersson, Lars; Larbo, Stig; Lindskog, Sture; and Johansson, Otto, to Allmanna Svenska Elektriska Aktiebolaget. Windable insulting tape with spacers and method of manufacturing such tape. 3,575,775, Cl. 161-39.
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- Angelico, Henry R., to Electrostatic Equipment Corporation. Nozzle and apparatus for electrostatic powder spraying. 3,575,344, Cl. 239-15.
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- Word, James C., IV, to Westinghouse Electric Corporation. Transmissive photocathode and devices utilizing the same, 3,575,628, Cl. 313-95.
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- Wright, Alfred G.: See—
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- Yamamoto, Yoshihiro: See—
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Miller, Kenneth F., and M. H. Smith, to Bourns, Inc. Piezo-electric multielement device, Re. 27,116, 4-20-71, Cl. D310—9.
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American Hospital Supply Corp.: See—
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	3,575,436		3,575,456		3,575,344		3,575,202		3,575,645		3,575,700
	3,575,681		3,575,485		3,575,358		3,575,224		3,575,662		3,575,701
	3,575,686		3,575,486		3,575,358		3,575,296		3,575,684		3,575,709
	3,575,746		3,575,489		3,575,376		3,575,339		3,575,720		3,575,715
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	3,575,245		3,575,727		3,575,840		3,575,619		3,575,225		3,575,305
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	3,575,261		3,575,793		3,575,764		3,575,682		3,575,424		3,575,375
	3,575,263		3,575,798		3,575,781		3,575,683		3,575,432		3,575,382
	3,575,272		3,575,803		3,575,784		3,575,706		3,575,494		3,575,391
	3,575,275		3,575,804		3,575,856		3,575,738		3,575,507		3,575,395
	3,575,277		3,575,807		3,575,868		3,575,739		3,575,554		3,575,435
	3,575,281		3,575,818		3,575,932		3,575,759		3,575,628		3,575,441
	3,575,293		3,575,821		3,575,933		3,575,850		3,575,668		3,575,447
	3,575,317		3,575,834		3,575,948		3,575,852		3,575,714		3,575,448
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	3,575,366		3,575,992		3,575,503		3,575,206		3,575,497		3,575,571
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	3,575,399		3,575,250		3,575,646		3,575,384		3,575,589		3,575,652
	3,575,400		3,575,347		3,575,771		3,575,414		3,575,597		3,575,694

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26 : 3,575,790 3,575,815 3,575,832 3,575,854 3,575,859 3,575,860 3,575,902 3,575,910 3,575,913 3,575,921 3,575,965 3,576,020 3,576,021 3,576,024 3,576,025 3,576,026 3,576,029 3,576,030 3,576,035 3,575,255 3,575,452 3,575,543 3,575,580 3,575,603 3,575,611 3,575,782 3,575,899 3,575,251 3,575,327 3,575,363 3,575,385 3,575,390 3,575,785 3,575,819 3,575,863 3,575,876 3,575,877 3,576,010 3,575,938 3,575,896 3,575,142 3,575,171 3,575,173 3,575,174 3,575,175 3,575,210 3,575,274 3,575,318 3,575,337 3,575,345 3,575,350 3,575,367 3,575,370 3,575,392 3,575,429 3,575,444 3,575,445 3,575,450 3,575,472 3,575,475 3,575,482 3,575,487 3,575,488 3,575,492 3,575,538 3,575,617 3,575,627	34 : 3,575,630 3,575,667 3,575,670 3,575,685 3,575,718 3,575,741 3,575,742 3,575,743 3,575,747 3,575,748 3,575,762 3,575,769 3,575,770 3,575,779 3,575,796 3,575,823 3,575,827 3,575,828 3,575,833 3,575,845 3,575,848 3,575,864 3,575,865 3,575,867 3,575,871 3,575,872 3,575,882 3,575,883 3,575,886 3,575,892 3,575,901 3,575,915 3,575,918 3,575,925 3,575,926 3,575,931 3,575,941 3,575,959 3,575,961 3,575,968 3,575,972 3,575,981 3,575,983 3,575,988 3,575,995 3,575,998 3,576,002 3,576,006 3,576,017 3,576,018 3,576,019 3,575,160 3,575,179 3,575,188 3,575,220 3,575,284 3,575,285 3,575,286 3,575,287 3,575,301 3,575,302 3,575,303 3,575,314 3,575,315 3,575,322 3,575,369 3,575,405	36 : 3,575,461 3,575,462 3,575,466 3,575,478 3,575,495 3,575,505 3,575,520 3,575,552 3,575,557 3,575,577 3,575,579 3,575,586 3,575,588 3,575,593 3,575,599 3,575,604 3,575,624 3,575,631 3,575,647 3,575,653 3,575,657 3,575,660 3,575,666 3,575,690 3,575,703 3,575,704 3,575,712 3,575,723 3,575,725 3,575,740 3,575,760 3,575,772 3,575,778 3,575,791 3,575,794 3,575,814 3,575,824 3,575,825 3,575,849 3,575,866 3,575,869 3,575,936 3,575,957 3,575,960 3,575,963 3,575,976 3,576,002 3,576,006 3,576,017 3,576,003 3,576,004 3,576,005 3,576,009 3,576,016 3,576,031 3,576,033 3,575,178 3,575,415 3,575,517 3,575,569 3,575,766 3,576,008 3,575,396 3,575,417 3,575,117 3,575,139 3,575,140	39 : 3,575,185 3,575,209 3,575,214 3,575,227 3,575,229 3,575,230 3,575,232 3,575,235 3,575,257 3,575,262 3,575,267 3,575,283 3,575,288 3,575,354 3,575,398 3,575,401 3,575,411 3,575,442 3,575,476 3,575,484 3,575,513 3,575,521 3,575,525 3,575,529 3,575,562 3,575,573 3,575,587 3,575,600 3,575,615 3,575,622 3,575,623 3,575,692 3,575,713 3,575,745 3,575,761 3,575,773 3,575,787 3,575,789 3,575,820 3,575,829 3,575,838 3,575,858 3,575,874 3,575,890 3,575,900 3,575,905 3,575,909 3,575,930 3,575,956 3,575,240 3,575,449 3,575,563 3,575,756 3,575,855 3,575,929 3,575,947 3,575,249 3,575,280 3,575,310 3,575,377 3,575,457 3,575,618 3,575,801 Re. 27, 115 3,575,166 3,575,191	42 : 3,575,213 3,575,248 3,575,291 3,575,304 3,575,312 3,575,313 3,575,333 3,575,379 3,575,381 3,575,388 3,575,394 3,575,397 3,575,422 3,575,423 3,575,430 3,575,491 3,575,493 3,575,498 3,575,539 3,575,542 3,575,544 3,575,555 3,575,565 3,575,592 3,575,594 3,575,596 3,575,605 3,575,629 3,575,633 3,575,642 3,575,644 3,575,677 3,575,679 3,575,696 3,575,734 3,575,735 3,575,765 3,575,768 3,575,817 3,575,853 3,575,857 3,575,862 3,575,878 3,575,895 3,575,908 3,575,912 3,575,916 3,575,967 3,575,975 3,575,977 3,575,979 3,575,984 3,575,986 3,575,987 3,575,991 3,576,001 3,576,015 3,575,228 3,575,324 3,575,360 3,575,776 3,575,190 3,575,211 3,575,236 3,575,342 3,575,530	47 : 3,575,875 3,575,898 3,575,927 3,575,935 3,575,971 3,575,194 3,575,198 3,575,204 3,575,237 3,575,269 3,575,353 3,575,416 3,575,469 3,575,470 3,575,471 3,575,585 3,575,733 3,575,847 3,575,870 3,575,881 3,575,885 3,575,888 3,575,950 3,576,023 3,576,027 3,576,028 3,575,308 3,575,688 3,575,697 3,575,180 3,575,531 3,575,234 3,575,264 3,575,336 3,575,483 3,575,641 3,575,805 3,575,259 3,575,321 3,575,371 3,575,407 3,575,408 3,575,460 3,575,655 3,575,808 3,575,138 3,575,515 3,575,942 3,575,170 3,575,178 3,575,184 3,575,212 3,575,222 3,575,243 3,575,252 3,575,551 3,575,637 3,575,663 3,575,719 3,575,767 3,575,788 3,575,799 3,575,800 3,575,911 3,575,200 3,575,341
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Design Patents

6 : 220,468 220,471 220,472 220,473 220,477 220,492 220,493 220,494 220,498 220,501 220,504 220,506 220,512 220,513	6 : 220,514 220,538 220,539 220,541 220,544 220,557 220,478 220,511 9 : 220,490 220,559 12 : 220,474 17 : 220,465 220,467 220,491	17 : 220,543 220,544 220,546 220,547 220,549 220,556 220,475 220,503 25 : 220,521 220,522 220,523 220,524 220,525 220,526	25 : 220,529 220,530 220,483 220,485 220,505 220,542 220,499 220,507 220,508 220,510 29 : 220,482 31 : 220,517 34 : 220,486	34 : 220,502 220,537 220,480 220,518 220,519 220,520 220,532 220,540 37 : 220,550 39 : 220,466 220,509 220,515 220,548	39 : 220,558 220,470 220,484 220,552 220,476 220,527 220,528 220,531 53 : 220,533 220,534 220,535 220,536 220,487
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Plant Patents

1 : 3,047	18 : 3,052	24 : 3,048	36 : 3,049	43 : 3,050
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OFFICIAL GAZETTE of the UNITED STATES PATENT OFFICE

April 27, 1971

Volume 885

Number 4

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PATENT OFFICE NOTICES

TITLE 37—PATENTS, TRADEMARKS, AND COPYRIGHTS

Chapter 1—Patent Office, Department of Commerce

PART 1—RULES OF PRACTICE IN PATENT CASES

Extensions of Time To File Appeal Briefs

After the effective date of this rule change, the examining group clerical staffs will perform all processing and record-keeping relating to appeals to the Board of Appeals up to and including the time when an examiner's supplemental answer to a reply brief is mailed or the time for filing a reply brief has expired. At this time jurisdiction of an appealed application passes from the examiner to the Board of Appeals.

Therefore, all inquiries and papers concerning an application under appeal should be directed to the appropriate examining group until the application is in condition for consideration by the Board of Appeals.

Papers filed in an appealed application under the jurisdiction of the Board of Appeals, such as requests for reconsideration or confirmation of an oral hearing date, should include an expression in the heading such as "Before the Board of Appeals" so that it may be properly routed by the mailroom.

The examining group appeal clerks are authorized to grant, upon the first request therefor, 1-month extensions of time to file the brief or reply brief. Any further extensions or any initial request for an extension of more than 1 month may be granted by the group directors.

After the effective date, there will be no Patent Office acknowledgements of notices of appeals or briefs.

There was published in the December 31, 1970, issue of the Federal Register (35 F.R. 20010) a proposal to revise § 1.192 of Title 37, Code of Federal Regulations, to broaden the authority to grant extensions of time for filing appeal briefs.

Interested persons were given the opportunity to participate in the rule making through submission of comments in writing, and at an oral hearing held on February 19, 1971.

In consideration of the foregoing and pursuant to the authority contained in section 6 of the Act of July 19, 1952 (66 Stat. 793; 35 U.S.C. 6), § 1.192 of Title 37 of the Code of Federal Regulations is hereby revised as follows:

§ 1.192 Appellant's brief.

(a) The appellant shall, within 2 months from the date of the appeal, or within the time allowed for response to the action appealed from, if such time is later, file a brief in triplicate, accompanied by the requisite fee, of the authorities and arguments on which he will rely to maintain his appeal, including a concise explanation of the invention which should refer to the drawing by reference characters, and a copy of the claims involved, at the same time indicating if he desires an oral hearing. Upon a showing of sufficient cause, the Commissioner may grant extensions of time for filing the brief. The determination of such requests may be delegated by the Commissioner to appropriate Patent Office officials. All requests for extensions must be filed prior to the expiration of the period sought to be extended.

(b) On failure to file the brief, accompanied by the requisite fee, within the time allowed, the appeal shall stand dismissed.

Effective date. This amendment shall be effective March 30, 1971.

WILLIAM E. SCHUYLER, JR.,
Commissioner of Patents.

Approved: March 25, 1971.

JAMES H. WAKELIN, JR.,
Assistant Secretary for
Science and Technology.

[FR Doc. 71-4414 Filed 3-29-71; 8:50 am]

Published in 36 F.R. 5850; Mar. 30, 1971

Patent Suits

Notices under 35 U.S.C. 290; Patent Act of 1952

2,784,132, E. N. Maisel, AIR PERMEABLE FIBROUS BATT, filed July 11, 1969, D.C., E.D. Mich. (Detroit), Doc. 33091, U.S. Padding Corp. and Edward P. Dolon v. Union Carbide Corp. Stipulation and order of dismissal, complaint herein insofar as it seeks judgment declaring defendant's patent to be invalid and not infringed is dismissed without prejudice. Complaint herein insofar as it seeks judgment on all other matters is dismissed with prejudice, counterclaim herein is dismissed without prejudice, Sept. 18, 1970 (amended).

2,926,116. (See 2,926,154.)

2,926,154, G. I. Keim, CATIONIC THERMOSETTING POLY-AMIDE-EPICHLOROHYDRIN RESINS AND PROCESS OF MAKING SAME; 2,926,116, same, WET-STRENGTH PAPER AND METHOD OF MAKING SAME, filed Apr. 14, 1967, D.C., E.D. Wash. (Seattle), Doc. 7156, Hercules Incorporated v. Pacific Resins & Chemicals, Inc. Judgment of dismissal, Nov. 5, 1970.

2,995,035, Bloxson and Rhodes, WIND TUNNEL WITH A CONTROLLED MEANS TO PRODUCE HIGH ENERGY GAS STREAMS; 3,230,764, same, METHOD OF DETERMINING HEAT TRANSFER RATES AND TEMPERATURE CONDITIONS, filed Oct. 3, 1968, D.C., W.D. Wash. (Seattle), Doc. 7927, Barry V. Rhodes, Daniel E. Bloxson, Jr. v. The Boeing Company. Dismissed Sept. 17, 1970.

3,173,583, E. A. Wahl, BIN ACTIVATOR, filed Dec. 18, 1970, D.C., W.D. Ky. (Louisville), Doc. 6820, Eugene A. Wahl, Vibra Screw, Inc. v. Vibrantics, Inc.

3,177,385, J. I. Montagu, ELECTRIC MOTOR FOR LIMITED ROTATION, filed Dec. 22, 1970, D.C. Mass. (Boston), Doc. 70-1956-M, Mechanics for Electronics Inc. v. General Scanning, Inc. and Jean I. Montagu.

3,182,164, R. Ironfield, ELECTROMAGNETIC ENERGY SEAL, filed Dec. 10, 1970, D.C., N.D. Ohio (Cleveland), Doc. C70-1135, Raytheon Company v. Tappan Co. et al.

3,188,468, L. E. Packard, METHOD AND APPARATUS FOR AUTOMATIC STANDARDIZATION IN LIQUID SCINTILLATION SPECTROMETRY, filed Dec. 16, 1970, D.C., N.D. Ill. (Chicago), Doc. 70c3150, Packard Instrument Co. v. Beckman Instruments Inc.

3,230,764. (See 2,995,035.)

3,259,157, E. E. Runnion, PRODUCTION OF DIMENSIONAL LUMBER FROM SMALL-DIAMETER LOGS; 3,344,826, L. A. Mitten, PRODUCTION OF PULP CHIPS AND STUD LUMBER FROM PEELER CORES, filed Apr. 3, 1969, D.C., W.D. Wash. (Seattle), Doc. 8225, Ernest E. Runnion and Hawker Siddeley Canada Ltd. v. Stetson-Ross Machine Co., Inc. and Pope & Talbot, Inc. Stipulation and order of dismissal, Sept. 18, 1970.

3,267,578, Niemelc and Satterlee, HAIR DRYER, filed Mar. 25, 1970, D.C., E.D. Wis. (Milwaukee), Doc. 68-C-84, Faberge v. John Oster Manufacturing Co. Consent judgment, defendant owner of said patent, all claims valid and infringed by plaintiff, Nov. 27, 1970.

3,313,262, Yunker and Southern, TRIM CORRECTING APPARATUS FOR BOATS, filed Apr. 26, 1967, D.C., W.D. Wash. (Seattle), Doc. 7173, Robert E. Yunker and John P. Southern v. George K. Comstock, Warren P. Jensen and Plastic Products Corporation. Dismissed, Apr. 19, 1968.

3,326,310, D. P. Hand, DRIVE ASSEMBLY FOR CARRIER VEHICLE, filed June 5, 1968, D.C., W.D. Wash. (Seattle), Doc. 7757, Scott Douglas Industries, Inc. v. Weyerhaeuser Company et al. Dismissed, Mar. 30, 1970.

3,328,824, R. E. Chalfant, BROOM AND HANDLE ATTACHING MEANS THEREFOR, filed Dec. 22, 1970, D.C., W.D. Tex. (El Paso), Doc. EP-70-CA-286, Raymond E. Chalfant v. Texas Plastics Industries, Inc. and Lighthouse for the Blind.

3,343,961, H. Truax, METHOD FOR TREATING SOYBEANS AND THE LIKE USING INFRA-RED HEAT; 3,368,475, same, MACHINE FOR TREATING SOYBEANS AND THE LIKE, filed Oct. 29, 1970, D.C., N.D. Ill. (Freeport), Doc. No. 70c63,

APRIL 27, 1971

U. S. PATENT OFFICE

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Miz-Mill, Inc. and Harry Truax & Sons Co., Inc. v. Agri-King, Inc. Cause dismissed before the filing of an answer, Nov. 30, 1970.

3,344,826. (See 3,259,157.)

3,368,475. (See 3,343,961.)

3,368,528, L. C. Gano, SIMULATED DOG-BONE AND METHOD OF MAKING THEREOF, filed July 3, 1969, D.C., S.D.N.Y., Doc.69-C-2902, Superior Pet Products Inc. v. Geisler Pet Products. Order of discontinuance, Dec. 2, 1970.

3,476,260, R. S. Jay, STORAGE RACK FOR CYLINDRICAL CONTAINERS, filed Dec. 22, 1970, D.C., E.D. Wis. (Milwaukee), Doc. 70-C-723, Jarke Corporation v. C & H Distributors, Inc.

3,518,900, H. G. Tank, FLOORING SYSTEM, filed Aug. 10, 1970, D.C., E.D. Wis. (Milwaukee), Doc. 70-C-450, Connor Forest Industries v. Duo-Lok, Inc. et al. Same, filed Aug. 21, 1970, D.C., W.D. Mich. (Grand Rapids), Doc. CA 1391, Connor Forest Industries v. Ahonen Lumber Company and Roy R. Ahonen.

3,526,361, J. R. Piper, HEATING SYSTEM, filed Sept. 8, 1970, D.C., C.D. Calif. (Los Angeles), Doc. 70-2001-R, Mil-West Industries, Inc. v. Balance Flo Inc.

Re. 25,737. (See Re. 25,812.)

Re. 25,812, M. Morgan, by Kearney and Trecker, assignee. AUTOMATIC MACHINE TOOL; Re. 25,737, Brainard, Hansen, Sedgwick, Sipek and Baechle, MACHINE TOOL WITH MECHANICAL CUTTING TOOL CHANGER, filed Dec. 14, 1970,

D.C., N.D. Ill. (Chicago), Doc. 70c3123, Kearney & Trecker Corp. etc. v. Houdaille Industries, Inc. etc.

D. 212,602, R. A. Gera, SECTIONAL SOFA, filed June 19, 1969, D.C., S.D. Tex. (Houston), Doc. 69-H-554, Schnadig Corporation v. Sherman-Bertram, Inc. and Consolidated Furniture Industries, Inc., doing business as Sherman-Bertram of Texas. Plaintiff owner of design patent. Perpetual injunction directed to said defendant, Nov. 16, 1970.

D. 212,879, R. E. K. Jakobsen, CHAIR, filed Jan. 14, 1971, D.C., M.D.N.C. (Greensboro), Doc. C-11-G-71, Daystrom Virtue, Inc. v. Stonerville Industries, Inc.

D. 219,118, Baker and Plecia, BOAT, filed Dec. 24, 1970, D.C., C.D. Calif. (Los Angeles), Doc. 70-2893-ALS, Side-winder Marine, Inc. v. Robert Burns et al.

Erratum

In the OFFICIAL GAZETTE of Dec. 22, 1970, vol. 881, page 1298, in the twelfth paragraph beginning with 2,784,132, the fourth line reading "Patent invalid and not infringed. Order of dismissal, Sept. 18, 1970." should be deleted and the following substituted.—Stipulation and order of dismissal, complaint herein insofar as it seeks judgment declaring defendant's Pat. No. 2,784,132 to be invalid and not infringed is dismissed without prejudice. Complaint herein insofar as it seeks judgment on all other matters is dismissed with prejudice, counterclaim herein is dismissed without prejudice, Sept. 18, 1970.—

Certificates of Correction for the Week of Apr. 27, 1971

Re. 26,970	3,532,991	3,544,472	3,551,743
Re. 27,044	3,533,075	3,544,572	3,551,774
D. 207,096	3,534,141	3,544,918	3,551,794
D. 218,944	3,534,736	3,544,978	3,552,059
3,359,945	3,534,790	3,546,101	3,552,633
3,476,642	3,536,671	3,546,915	3,553,218
3,478,897	3,537,074	3,547,729	3,553,305
3,483,468	3,538,705	3,547,885	3,553,350
3,485,944	3,538,848	3,547,992	3,553,523
3,503,745	3,538,881	3,548,160	3,553,560
3,508,649	3,539,494	3,548,756	3,554,353
3,516,685	3,539,536	3,548,822	3,554,360
3,517,326	3,539,881	3,549,540	3,554,470
3,519,430	3,540,107	3,549,616	3,554,671
3,519,639	3,540,518	3,549,928	3,555,025
3,520,832	3,540,850	3,549,944	3,555,360
3,520,887	3,541,077	3,549,995	3,555,580
3,527,656	3,541,434	3,550,048	3,556,509
3,527,880	3,541,483	3,550,153	3,557,000
3,528,114	3,541,787	3,550,572	3,558,176
3,528,525	3,542,567	3,550,598	3,558,453
3,528,823	3,542,762	3,551,072	3,558,509
3,531,303	3,544,003	3,551,146	3,558,806
3,532,253	3,544,318	3,551,735	

Disclaimers and Dedications

3,183,446.—*Peter L. Richman*, Lexington, Mass. ELECTRICAL SIGNAL COMPARATOR. Patent dated May 11, 1965. Disclaimer and dedication filed Mar. 17, 1971, by the assignee, *Weston Instruments, Inc.*

Hereby enters this disclaimer to the remaining term of said patent and dedicates said patent to the Public.

3,195,054.—*Peter L. Richman*, Lexington, Mass. PRECISION COMPARISON DEVICE. Patent dated July 13, 1965. Disclaimer and dedication filed Mar. 17, 1971, by the assignee, *Weston Instruments, Inc.*

Hereby enters this disclaimer to the remaining term of said patent and dedicates said patent to the Public.

3,311,835.—*Peter L. Richman*, Lexington, Mass. OPERATIONAL RECTIFIER. Patent dated Mar. 28, 1967. Disclaimer and dedication filed Mar. 17, 1971, by the assignee, *Weston Instruments, Inc.*

Hereby enters this disclaimer to the remaining term of said patent and dedicates said patent to the Public.

3,368,159.—*Peter L. Richman*, Lexington, Mass. FEEDBACK SYSTEMS WITH OUTPUT INDUCTIVE DEVICES. Patent dated Feb. 6, 1968. Disclaimer and dedication filed Mar. 17, 1971, by the assignee, *Weston Instruments, Inc.*

Hereby enters this disclaimer to the remaining term of said patent and dedicates said patent to the Public.

3,369,193.—*John G. Nordahl*, Lexington, Mass. OSCILLATOR WITH CONTROLLED LINEAR FEEDBACK CIRCUIT. Patent dated Feb. 13, 1968. Disclaimer and dedication filed Mar. 17, 1971, by the assignee, *Weston Instruments, Inc.*

Hereby enters this disclaimer to the remaining term of said patent and dedicates said patent to the Public.

3,376,513.—*Peter L. Richman*, Lexington, Mass. HIGH PRECISION COMPARATOR DEVICE. Patent dated Apr. 2, 1968. Disclaimer and dedication filed Mar. 17, 1971, by the assignee, *Weston Instruments, Inc.*

Hereby enters this disclaimer to the remaining term of said patent and dedicates said patent to the Public.

3,378,785.—*John G. Nordahl*, Lexington, Mass. NINETY-DEGREE AMPLIFIER PHASE SHIFT CIRCUIT. Patent dated Apr. 16, 1968. Disclaimer and dedication filed Mar. 17, 1971, by the assignee, *Weston Instruments, Inc.*

Hereby enters this disclaimer to the remaining term of said patent and dedicates said patent to the Public.

3,378,791.—*Walter T. Towner*, Canton, Mass. OSCILLATOR WITH LOW DISTORTION FEEDBACK GAIN CONTROL. Patent dated Apr. 16, 1968. Disclaimer and dedication filed Mar. 17, 1971, by the assignee, *Weston Instruments, Inc.*

Hereby enters this disclaimer to the remaining term of said patent and dedicates said patent to the Public.

3,388,345.—*Walter T. Towner*, Canton, Mass. VARIABLE RESISTANCE NETWORKS FOR CONTROLLING THE LOOP GAIN OF AN OSCILLATOR. Patent dated June 11, 1968. Disclaimer and dedication filed Mar. 17, 1971, by the assignee, *Weston Instruments, Inc.*

Hereby enters this disclaimer to the remaining term of said patent and dedicates said patent to the Public.

3,396,346.—*Peter L. Richman*, Lexington, Mass. PHASE SHIFT OSCILLATOR WITH ERROR CORRECTOR. Patent dated Aug. 6, 1968. Disclaimer and dedication filed Mar. 17, 1971, by the assignee, *Weston Instruments, Inc.*

Hereby enters this disclaimer to the remaining term of said patent and dedicates said patent to the Public.

3,396,347.—*Peter L. Richman*, Lexington, *Walter T. Towner*, Canton, and *John G. Nordahl*, Lexington, Mass. PRECISION OSCILLATOR. Patent dated Aug. 6, 1968. Disclaimer and dedication filed Mar. 17, 1971, by the assignee, *Weston Instruments, Inc.*

Hereby enters this disclaimer to the remaining term of said patent and dedicates said patent to the Public.

3,422,362.—*James L. West*, Concord, Mass. PHASE DETECTOR WITH LOW RIPPLE OUTPUT NEAR ZERO PHASE ANGLE. Patent dated Jan. 14, 1969. Disclaimer and dedication filed Mar. 17, 1971, by the assignee, *Weston Instruments, Inc.*

Hereby enters this disclaimer to the remaining term of said patent and dedicates said patent to the Public.

3,428,884.—*John G. Nordahl*, Lexington, Mass. LINEAR VOLTAGE VARIABLE RESISTANCE NETWORKS. Patent dated Feb. 18, 1969. Disclaimer and dedication filed Mar. 17, 1971, by the assignee, *Weston Instruments, Inc.*

Hereby enters this disclaimer to the remaining term of said patent and dedicates said patent to the Public.

3,434,041.—*John G. Nordahl*, Lexington, and *John Kaczorowski, Jr.*, Marshfield, Mass. LINEAR CONDUCTANCE SWITCH. Patent dated Mar. 18, 1969. Disclaimer and dedication filed Mar. 17, 1971, by the assignee, *Weston Instruments, Inc.*

Hereby enters this disclaimer to the remaining term of said patent and dedicates said patent to the Public.

3,434,042.—*John Kaczorowski, Jr.*, Bayberry Point, Mass. LINEAR CONDUCTANCE SWITCH. Patent dated Mar. 18, 1969. Disclaimer and dedication filed Mar. 17, 1971, by the assignee, *Weston Instruments, Inc.*

Hereby enters this disclaimer to the remaining term of said patent and dedicates said patent to the Public.

3,435,319.—*Peter L. Richman*, Lexington, Mass. THERMAL RMS CONVERTER WITH FEEDBACK TO CONTROL OPERATING POINT. Patent dated Mar. 25, 1969. Disclaimer and dedication filed Mar. 17, 1971, by the assignee, *Weston Instruments, Inc.*

Hereby enters this disclaimer to the remaining term of said patent and dedicates said patent to the Public.

3,453,529.—*Peter L. Richman*, Lexington, Mass. ATTENUATORS HAVING CONSTANT OUTPUT RESISTANCE. Patent dated July 1, 1969. Disclaimer and dedication filed Mar. 17, 1971, by the assignee, *Weston Instruments, Inc.*

Hereby enters this disclaimer to the remaining term of said patent and dedicates said patent to the Public.

3,458,823.—*John G. Nordahl*, Lexington, Mass. FREQUENCY COINCIDENCE DETECTOR. Patent dated July 29, 1969. Disclaimer and dedication filed Mar. 17, 1971, by the assignee, *Weston Instruments, Inc.*

Hereby enters this disclaimer to the remaining term of said patent and dedicates said patent to the Public.

3,470,445.—*Peter L. Richman*, Lexington, Mass. R.M.S. TO D.C. CONVERTER FOR PERIODIC SIGNALS. Patent dated Sept. 30, 1969. Disclaimer and dedication filed Mar. 17, 1971, by the assignee, *Weston Instruments, Inc.*

Hereby enters this disclaimer to the remaining term of said patent and dedicates said patent to the Public.

3,480,794.—*Peter L. Richman*, Lexington, Mass. PARALLEL OPERATIONAL RECTIFIERS. Patent dated Nov. 25, 1969. Disclaimer and dedication filed Mar. 17, 1971, by the assignee, *Weston Instruments, Inc.*

Hereby enters this disclaimer to the remaining term of said patent and dedicates said patent to the Public.

3,480,835.—*Peter L. Richman*, Lexington, Mass. THERMAL RMS LIMITER AND SEMICONDUCTOR DRIVING CIRCUIT MEANS. Patent dated Nov. 25, 1969. Disclaimer and

dedication filed Mar. 17, 1971, by the assignee, *Weston Instruments, Inc.*

Hereby enters this disclaimer to the remaining term of said patent and dedicates said patent to the Public.

3,486,014.—*Peter L. Richman*, Lexington, Mass. POWER TO DC CONVERTER. Patent dated Dec. 23, 1969. Disclaimer and dedication filed Mar. 17, 1971, by the assignee, *Weston Instruments, Inc.*

Hereby enters this disclaimer to the remaining term of said patent and dedicates said patent to the Public.

3,502,977.—*Peter L. Richman*, Lexington, and *James L. West*, Concord, Mass. LOW FREQUENCY MEASURING APPARATUS WITH PHASE LOCKED LOOP. Patent dated Mar. 24, 1970. Disclaimer and dedication filed Mar. 17, 1971, by the assignee, *Weston Instruments, Inc.*

Hereby enters this disclaimer to the remaining term of said patent and dedicates said patent to the Public.

3,506,322.—*William Richards*, Medway, Mass. FABRICATED FRAME AND HOUSING. Patent dated Apr. 14, 1970. Disclaimer and dedication filed Mar. 17, 1971, by the assignee, *Weston Instruments, Inc.*

Hereby enters this disclaimer to the remaining term of said patent and dedicates said patent to the Public.

3,521,164.—*Peter L. Richman*, Lexington, Mass. RMS VOLTAGE MEASURING APPARATUS. Patent dated July 21, 1970. Disclaimer and dedication filed Mar. 17, 1971, by the assignee, *Weston Instruments, Inc.*

Hereby enters this disclaimer to the remaining term of said patent and dedicates said patent to the Public.

3,521,179.—*Timothy B. Blanche*, West Concord, Mass. AMPLIFIER WITH SOURCE VOLTAGE CONTROL. Patent dated July 21, 1970. Disclaimer and dedication filed Mar. 17, 1971, by the assignee, *Weston Instruments, Inc.*

Hereby enters this disclaimer to the remaining term of said patent and dedicates said patent to the Public.

PATENT EXAMINING CORPS

R. A. WAHL, Assistant Commissioner
F. H. BRONAUGH, Deputy Assistant Commissioner

CONDITION OF PATENT APPLICATIONS AS OF APRIL 6, 1971

PATENT EXAMINING GROUPS	Actual Filing Date of Oldest New Case Awaiting Action
CHEMICAL EXAMINING GROUPS	
GENERAL CHEMISTRY AND PETROLEUM CHEMISTRY, GROUP 110—M. STERMAN, Director.....	12-01-69
Inorganic Compounds; Inorganic Compositions; Organo-Metal and Organo-Metalloid Chemistry; Metallurgy; Metal Stock; Electro Chemistry; Batteries; Hydrocarbons; Mineral Oil Technology; Lubricating Compositions; Gaseous Compositions; Fuel and Igniting Devices.	
GENERAL ORGANIC CHEMISTRY, GROUP 120—I. MARCUS, Director.....	7-29-69
Heterocyclic; Amides; Alkaloids; Azo; Sulfur; Misc. Esters; Carbohydrates; Herbicides; Poisons; Medicines; Cosmetics; Steroids; Oxo and Oxy; Quinones; Acids; Carboxylic Acid Esters; Acid Anhydrides; Acid Halides.	
HIGH POLYMER CHEMISTRY, PLASTICS AND MOLDING, GROUP 140—L. J. BERCOVITZ, Director.....	1-08-70
Synthetic Resins; Rubber; Proteins; Macromolecular Carbohydrates; Mixed Synthetic Resin Compositions; Synthetic Resins With Natural Polymers and Resins; Natural Resins; Reclaiming; Pore-Forming; Compositions (Part) e.g.: Coating; Molding; Ink; Adhesive and Abrading Compositions; Molding, Shaping, and Treating Processes.	
COATING AND LAMINATING, BLEACHING, DYEING AND PHOTOGRAPHY, GROUP 160—A. P. KENT, Director.....	1-02-70
Coating; Processes and Misc. Products; Laminating Methods and Apparatus; Stock Materials; Adhesive Bonding; Special Chemical Manufactures; Special Utility Compositions; Bleaching; Dyeing and Photography.	
SPECIALIZED CHEMICAL INDUSTRIES AND CHEMICAL ENGINEERING, GROUP 170—W. B. KNIGHT, Director.....	10-03-69
Fertilizers; Foods; Fermentation; Analytical Chemistry; Reactors; Sugar and Starch; Paper Making; Glass Manufacture; Gas; Heating and Illuminating; Cleaning Processes; Liquid Purification; Distillation; Preserving; Liquid and Solid Separation; Gas and Liquid Contact Apparatus; Refrigeration; Concentrative Evaporators; Mineral Oils Apparatus; Misc. Physical Processes.	
ELECTRICAL EXAMINING GROUPS	
INDUSTRIAL ELECTRONICS AND RELATED ELEMENTS, GROUP 210—N. ANSHER, Director.....	7-06-70
Generation and Utilization; General Applications; Conversion and Distribution; Heating and Related Art Conductors; Switches; Miscellaneous.	
SECURITY, GROUP 220—R. L. CAMPBELL, Director.....	7-15-69
Ordinance; Firearms and Ammunition; Radar, Underwater Signalling, Directional Radio, Torpedoes, Seismic Exploring, Radio-Active Batteries; Nuclear Reactors, Powder Metallurgy, Rocket Fuels; Radio-Active Material.	
INFORMATION TRANSMISSION, STORAGE AND RETRIEVAL, GROUP 230—J. F. COUCH, Director.....	1-02-70
Communications; Multiplexing Techniques; Facsimile; Data Processing, Computation and Conversion; Storage Devices and Related Arts.	
ELECTRONIC COMPONENT SYSTEMS AND DEVICES, GROUP 250—W. L. CARLSON, Director.....	2-06-70
Semi-Conductor and Space Discharge Systems and Devices; Electronic Component Circuits; Wave Transmission Lines and Networks; Optics; Radiant Energy; Measuring.	
PHYSICS, GROUP 280—R. L. EVANS, Director.....	12-23-70
Photography; Sound and Lighting; Indicators and Optics; Measuring and Testing; Geometrical Instruments.	
DESIGNS, GROUP 290—R. L. CAMPBELL, Director.....	5-22-70
Industrial Arts; Household, Personal and Fine Arts.	
MECHANICAL EXAMINING GROUPS	
HANDLING AND TRANSPORTING MEDIA, GROUP 310—A. BERLIN, Director.....	1-15-70
Conveyors; Hoists; Elevators; Article Handling Implements; Store Service; Sheet and Web Feeding; Dispensing; Fluid Sprinkling; Fire Extinguishers; Coin Handling; Check Controlled Apparatus; Classifying and Assorting Solids; Boats; Ships; Aeronautics; Motor and Land Vehicles and Appurtenances; Railways and Railway Equipment; Brakes; Rigid Flexible and Special Receptacles and Packages.	
MATERIAL SHAPING, ARTICLE MANUFACTURING, TOOLS, GROUP 320—D. J. STOCKING, Director.....	12-01-69
Manufacturing Processes, Assembling, Combined Machines, Special Article Making; Metal Deforming; Sheet Metal and Wire Working; Metal Fusion—Bonding, Metal Founding; Metallurgical Apparatus; Plastics Working Apparatus; Plastic Block and Earthenware Apparatus; Machine Tools for Shaping or Dividing; Work and Tool Holders Woodworking; Tools; Cutlery; Jacks.	
AMUSEMENT, HUSBANDRY, PERSONAL TREATMENT, INFORMATION, GROUP 330—A. RUEGG, Director.....	1-02-70
Amusement and Exercising Devices; Projectors; Animal and Plant Husbandry; Butchering; Earth Working and Excavating; Fishing, etc.; Tobacco; Artificial Body Members; Dentistry; Jewelry; Surgery; Toiletry; Printing; Typewriters; Stationery; Information Dissemination.	
HEAT, POWER AND FLUID ENGINEERING, GROUP 340—C. F. GAREAU, Director.....	4-24-70
Power Plants; Combustion Engines; Fluid Motors; Pumps; Turbines; Heat Generation and Exchange; Refrigeration; Ventilation; Drying; Vaporizing; Temperature and Humidity Regulation; Machine Elements; Power Transmission; Fluid Handling; Lubrication; Joint Packing.	
CONSTRUCTIONS, SUPPORTS, TEXTILES, CLEANING, GROUP 350—T. J. HICKEY, Director.....	1-06-70
Joints; Fasteners; Rod, Pipe and Electrical Connectors; Miscellaneous Hardware; Locks; Building Structures; Closure Operators; Bridges; Closures; Earth Engineering; Drilling; Mining; Furniture; Receptacles; Supports; Cabinet Structures; Centrifugal Separations; Cleaning; Coating; Pressing; Agitating; Foods; Textiles; Apparel and Shoes; Sewing Machines; Winding and Reeling.	

Expiration of patents: The patents within the range of numbers indicated below expire during April 1971, except those which may have expired earlier due to shortened terms under the provisions of Public Law 690, 70th Congress, approved August 8, 1946 (60 Stat. 940) and Public Law 619, 83rd Congress, approved August 23, 1954 (68 Stat. 764), or which may have had their terms curtailed by disclaimer under the provisions of 35 U.S.C. 253. Other patents, issued after the dates of the range of numbers indicated below, may have expired before the full term of 17 years for the same reasons, or have lapsed under the provisions of 35 U.S.C. 151.

Patents..... Numbers 2,673,978 to 2,677,128, inclusive
Plant Patents..... Numbers 1,267 to 1,273, inclusive

REISSUES

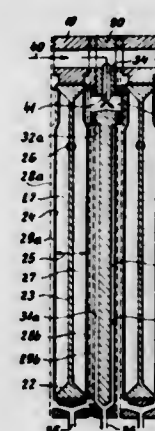
APRIL 27, 1971

Matter enclosed in heavy brackets [] appears in the original patent but forms no part of this reissue specification; matter printed in italics indicates additions made by reissue.

27,118
MECHANIZED HEAVY DUTY FILTER PRESSES
Adam Juhasz, Budapest, Hungary, assignor to Chemo-komplex Vegyipari Gep-es Berendezes Export-Import Vallalat, Budapest, Hungary
Original No. 3,390,772, dated July 2, 1968, Ser. No. 463,749, June 14, 1965, Application for reissue Aug. 28, 1969, Ser. No. 857,243
Claims priority, application Hungary, June 19, 1964, Ju-156

Int. Cl. B01d 25/12
U.S. Cl. 210—66

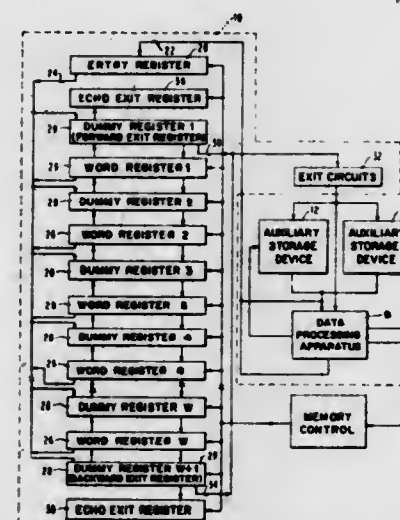
10 Claims



A mechanized heavy-duty filter press has a plurality of movable filter members. At least some of the filter members have inflatable bladders thereon, with filter means secured on opposite sides of the bladders and means for withdrawing a liquid from between the filter means and the bladder. The filtering area can thus be doubled, as compared to prior constructions in which the bladder itself formed one side of the filter chamber.

27,119
MEMORY SYSTEM
Robert R. Seeber, Jr., Poughkeepsie, and Arthur J. Sriver, Jr., Wappingers Falls, N.Y., assignors to International Business Machines Corporation, New York, N.Y.
Original No. 3,230,512, dated Jan. 18, 1966, Ser. No. 836,753, Aug. 28, 1959, Application for reissue Mar. 13, 1967, Ser. No. 626,355
Int. Cl. G11c 15/00
U.S. Cl. 340—172.5

47 claims

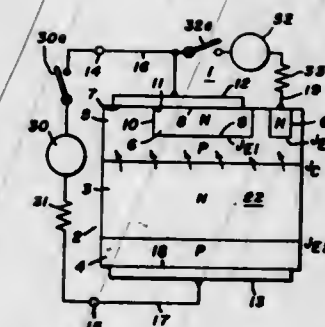


An associative memory is provided which sorts words as the words are entered into the memory. An associa-

tive search in the memory locates the position among the words previously entered into the memory where the next word is to be entered. Dummy registers between the word storing registers provide a temporary location for the word being entered. The word storage locations are shiftable to clear the dummy registers for the next entry. A search can be made under a mask, and means is provided for selecting words one at a time in order when a multiple match occurs.

27,120
SEMICONDUCTOR DEVICES AND METHODS OF MAKING SAME
Joseph Moyson, Union Springs, N.Y., assignor to General Electric Company
Original No. 3,196,330, dated July 20, 1965, Ser. No. 35,336, June 10, 1960, Application for reissue Feb. 19, 1970, Ser. No. 12,696
Int. Cl. H01L 13/00, 9/12
U.S. Cl. 317—235

11 Claims



A multilayer semiconductor switching device is disclosed formed of a body of semiconductor material having a plurality of layers of opposite conductivity type which form P-N junctions therebetween. Electrodes are associated with opposite endmost layers. A low impedance path may be provided from one of the electrodes to an adjacent intermediate layer. A zone is provided in one of the intermediate layers adjacent an endmost layer, the zone having a conductivity type corresponding to that of the endmost layer, and a control electrode is associated with this zone.

27,121
STABILIZED VINYL RESIN MOLDING COMPOSITION
Chrisosthenis M. Canarios, Maple Heights, Ohio, assignor to Ferro Corporation, Cleveland, Ohio
Original No. 2,944,045, dated July 5, 1960, Ser. No. 797,841, Mar. 9, 1959, Application for reissue Nov. 6, 1969, Ser. No. 871,498
Int. Cl. C08f 19/14, 21/04; C08h 9/00; C09d
U.S. Cl. 260—23

9 Claims

Heated stable vinyl resin compositions comprising 100 parts of a resin selected from the group consisting of polyvinyl chloride homopolymers and polyvinyl chloride copolymers and from 0.1 to 15 parts of each constituent of a stabilizing component, having the property of retaining stability after long periods of vinyl resin composition storage, said stabilizing component consisting of a metal salt of a higher fatty acid selected from the group consisting of barium and lead salts of higher fatty acids and

mixtures thereof and a metal oxide of the class consisting of barium oxide, calcium oxide, magnesium oxide and mixtures thereof.

27,122

VEHICLE DOOR LATCH

Harry J. Shay, Southfield, Mich., assignor to
L. W. Menzimer, Trustee, Rockford, Ill.

Original No. 3,359,026, dated Dec. 19, 1967, Ser. No. 613,375, Dec. 29, 1966, which is a continuation of Ser. No. 385,171, July 27, 1964. Application for reissue Aug. 8, 1969, Ser. No. 853,570

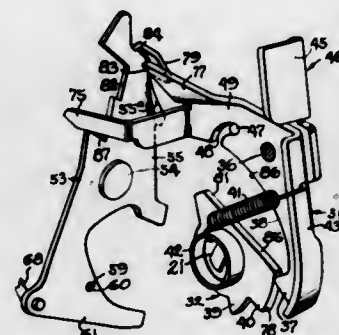
Int. Cl. E05c 3/36

U.S. Cl. 292-198

11 Claims

A dual preset latch for a vehicle door may be placed in a locked condition without the use of a key by first shifting an inside garnish button to a locked position while the

door is open and then by only momentarily depressing an outside push button. The door then may be closed and will lock automatically without need of holding the push button depressed as the door is swung shut.

**PATENTS**

GRANTED APRIL 27, 1971

GENERAL AND MECHANICAL

3,576,036

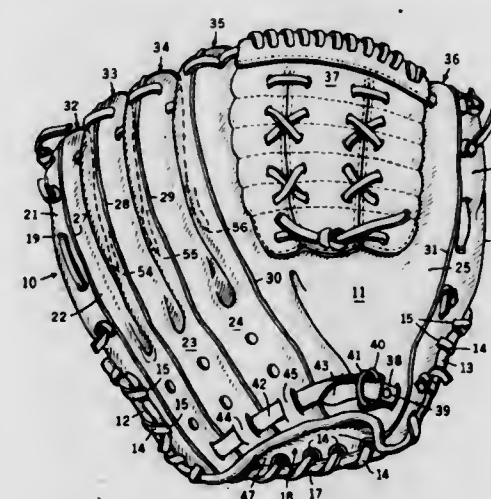
BASEBALL GLOVE CONSTRUCTION

Roland N. Latina, Belleville, Ill., assignor to Rawlings Sporting Goods Company, St. Louis, Mo.
Continuation of application Ser. No. 671,796, Sept. 29, 1967, now abandoned. This application Aug. 20, 1969, Ser. No. 853,605

Int. Cl. A41d 13/10

U.S. Cl. 2-19

6 Claims



A baseball glove construction in which the outer shell is made up of a new arrangement of components that more closely conforms the glove to a shape which allows more than the usual control over the glove by the hand, and also a glove construction in which the lining shell is assembled with a unique arrangement of seams such that when inserted in the outer shell lumps and wear-creating gathers are avoided.

3,576,037

ARTIFICIAL BREAST MEMBER

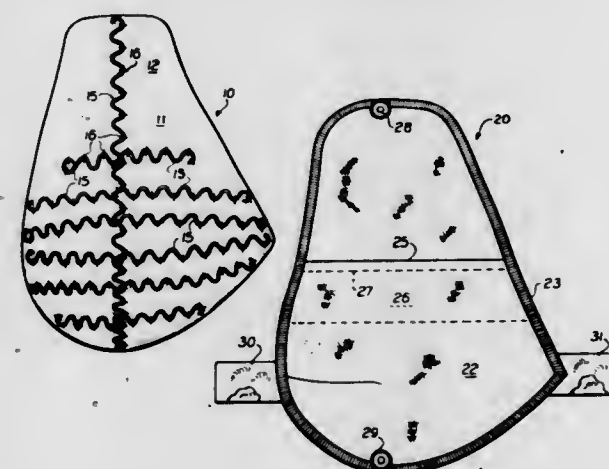
Margaret F. Klein, 179-15 Kildare Road, Jamaica Estates, N.Y.

Filed Mar. 26, 1969, Ser. No. 810,680

Int. Cl. A41c 3/10; A61f 1/00

U.S. Cl. 3-36

4 Claims



An artificial breast member formed of a resilient material such as foam rubber or the like contoured to the desired breast shape and provided with a plurality of surface con-

3,576,038

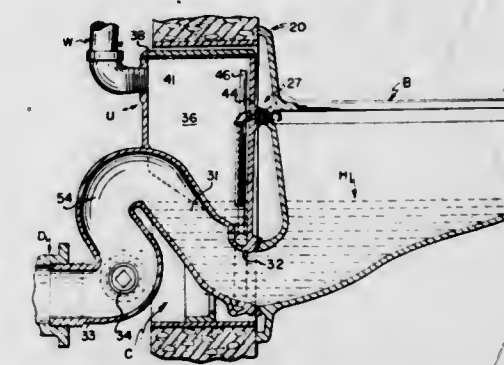
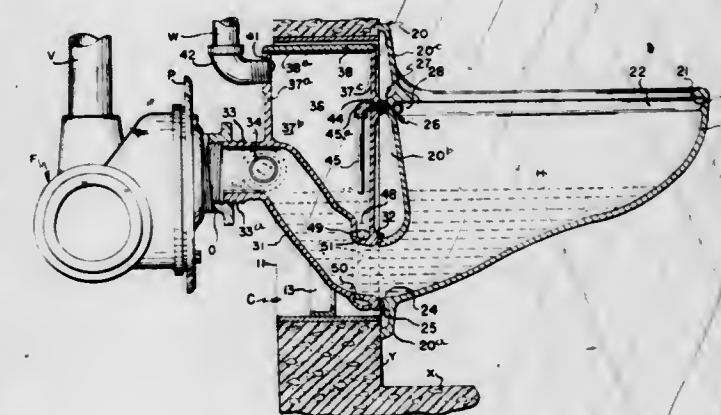
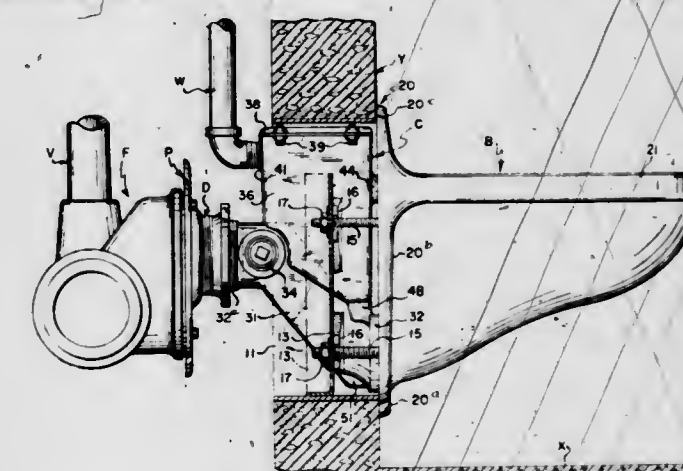
WATER CLOSET CONSTRUCTION

Richard D. Dirks; George J. Flegel, Michigan City; Roger L. Mielbeck, La Porte, Ind.; Lewis H. Polster, Shaker Heights, Ohio, and Nicholas G. Scheuer, Michigan City, Ind., assignors to Josam Manufacturing Co.
Filed July 18, 1969, Ser. No. 843,014

Int. Cl. E03d 11/02, 11/18

U.S. Cl. 4-14

35 Claims



For a security type or vandal proof type water closet installation, a shroud-carrier anchored in a wall to define a through-wall opening receiving a flush tank-trap unit connecting a wall-hung bowl fixture unit to a soil line; both units being carrier-supported by concealed, shroud-engaging rearward fixture studs. The bowl unit is a single casting having a simple bottom back outlet and, beneath a seat-defining top rim formation, to flush the bowl sides, a groove channeling water from a diverter nozzle secured in the upper bowl back

region; the bowl outlet and diverter nozzle being gasketed to the trap inlet and to a diverter tube outlet of the tank. Blow out and syphon jet tank-trap unit forms are described, with optional lateral plugged clean out or lavatory connection openings. The tank and trap with connection points for controlled water supply, bowl and soil line are provided basically in an integral casting, with, however, a separate tank cover; and also disclosed is a tank-trap unit with a tank open front closed by the bowl back gasketed thereto.

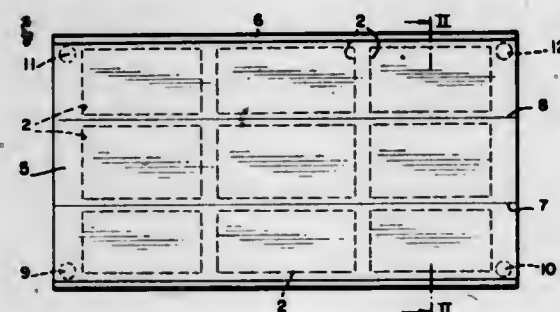
3,576,039

ABSORBENT UNDERPAD WITH SECURING MEANS
Donald R. Roberts, North Plainfield, N.J., assignor to C. R. Bard, Inc., Murray Hill, N.J.

Filed Sept. 9, 1968, Ser. No. 758,388
Int. Cl. A61g 7/04

U.S. Cl. 5-90

1 Claim



An absorbent underpad for hospital patients comprising a liquid permeable upper sheet, a body of liquid absorbent material, an impermeable backing sheet and pressure activated releasable adhesive areas located adjacent corners of the backing to hold the underpad in place under the patient, the same adhesive areas serving, when the used underpad is folded in a specified manner, to hold the pad closed and prevent spillage of the contents pending disposal.

3,576,040

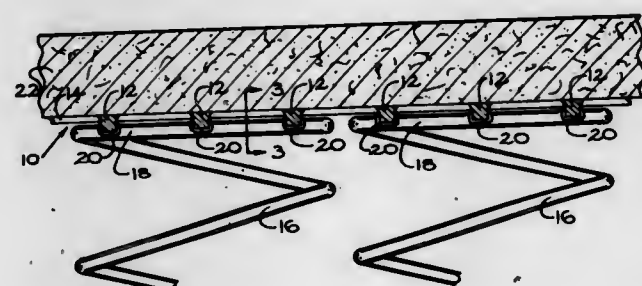
SPRING CUSHION STRUCTURES

Ronald L. Larsen, Minneapolis, Minn., assignor to Conwed Corporation, St. Paul, Minn.

Filed Oct. 21, 1968, Ser. No. 769,210
Int. Cl. A61f 13/18

U.S. Cl. 5-354

4 Claims



An adhesive plastic net is used over a spring foundation both as a spring insulator and as a spring positioner, being adhered to the springs by the adhesive material of the net itself.

3,576,041

SUDS SUPPRESSION METHOD

Donald E. Marshall, Edina, Mich. (4904 Sunnyside Road, Minneapolis, Minn. 55424)

Division of Ser. No. 784,050, Dec. 16, 1968. Filed July 6, 1970,
Ser. No. 52,601

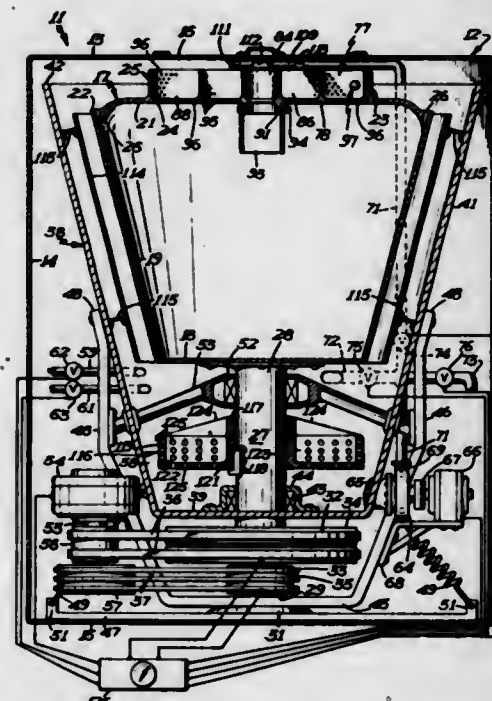
Int. Cl. D06f 39/06

U.S. Cl. 8-158

10 Claims

The improved washing machine method of the present invention is particularly adapted for washing clothes and the like in wash water having a relatively high concentration of sudsable soap or synthetic detergent. The improved method

utilizes a rotatable, vertically disposed, inverted frustoconical washing chamber positioned in, but spaced from, the walls of a stationary reservoir chamber. The lower, closed end of the reservoir chamber forms a wash water reservoir. The upper open end of the washing chamber is substantially closed by a removable cover which includes means for introducing wash water into the interior of the washing chamber, means for permitting wash water to be removed from the washing chamber during high speed rotation of the washing chamber, and means for suppressing suds in the wash water removed from the washing chamber before the wash water is permitted to return to the reservoir. A suds shield is utilized to prevent suds from contacting the sides of the rotating washing chamber while the wash water is returning to the reservoir from the washing chamber. A rotating disc is positioned



in the reservoir and is utilized to suppress suds formed in the wash water in the reservoir.

During operation, the washing chamber is rotated at a relatively high rotational speed about its vertical, central longitudinal axis so that the clothes and wash water in the washing chamber form an annular layer about the axis. Periodically, abruptly and briefly the rotational speed of the washing chamber is reduced to a rotational speed below that necessary to maintain the annular layer of clothes and wash water so that the clothes are tumbled and rearranged in the washing chamber. The rate of wash water being introduced and removed from the washing chamber is preselected so that during high speed rotation of the washing chamber, wash water in excess of that necessary to saturate the clothes is always present in the washing chamber.

3,576,042

FLOATATION GARMENT

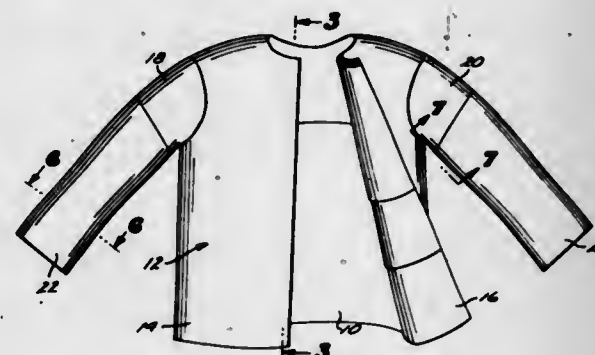
George H. Brauer, Downey, Calif., assignor to The Empress Corporation, Los Angeles, Calif.

Filed Apr. 21, 1969, Ser. No. 817,674

Int. Cl. B63c 9/10

U.S. Cl. 9-341

5 Claims



This invention relates to garments which incorporate insulation against wind and inclement weather and which are suf-

ficiently buoyant to serve as a life jacket when worn in the water. The embodiment selected for illustration in the drawing includes a coat of insulation material including front and rear sections formed of overlying layers of polyvinyl chloride sheet material. The several layers extend from the upper margins of the front and back sections at the shoulder downwardly toward the waist of the garment. Some of the layers are shorter than others whereby the finished garment is more buoyant at the upper part of its front section than it is at the lower part of its front section and so that the upper part of the front section is more buoyant than the back section. The garment shown includes sleeves the lower portions of which are made of a nonbuoyant insulating material so that the arms of a wearer will be caused to float.

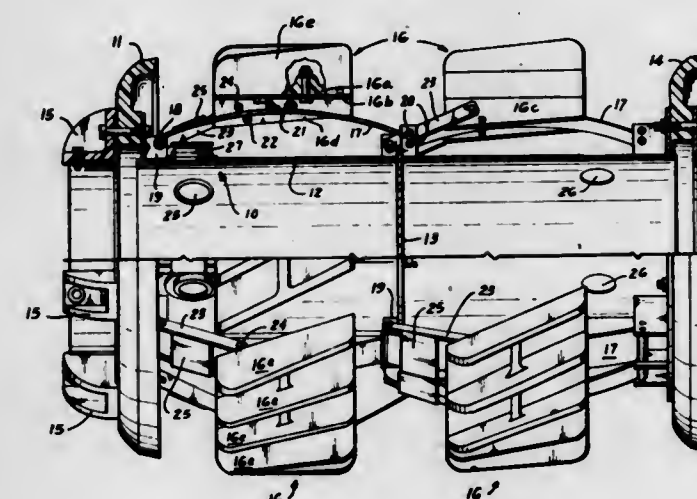
3,576,043

PIPELINE PIG WITH SPRING-MOUNTED SCRAPERS
Floyd E. Zongker, Tulsa, Okla., assignor to T. D. Williamson, Inc., Tulsa, Okla.

Filed Dec. 11, 1969, Ser. No. 884,232
Int. Cl. B08b 9/04

U.S. Cl. 15-104.06

8 Claims



A pipeline pig is provided in which a number of scraper elements are supported by bowed leaf springs on the pig body with the leaf springs being connected to the body such that their ends are free to pivot with respect to the body when the central portion of the springs are moved radially of the body. The scraper elements are mounted on the springs by a slidable nonclamping connection whereby the springs are free to flex along their entire length between their ends. The scraper elements are connected to the body so that their movement along the springs is limited and have elongated upstanding ribs that are inclined with respect to the longitudinal axis of the pig body so that they exert a plowing action on the pipeline walls and tend to rotate the pig as it is moved along the pipeline. The scraper elements, due to the manner in which they and the springs are mounted on the body, present a maximum contact of the ribs with the pipeline so as to most positively effect such plowing and turning action.

3,576,044

MEANS FOR ATTACHING THE ARM OF A WINDSHIELD WIPER TO THE BLADE SUPPORT THEREOF

Marcel Besnard, Romainville, France, assignor to Societe Anonyme Pour L'Equipe Electric Des Vehicules S.E.V. Marchal

Filed Jan. 30, 1969, Ser. No. 795,261

Claims priority, application France, Feb. 5 1968,
138,744

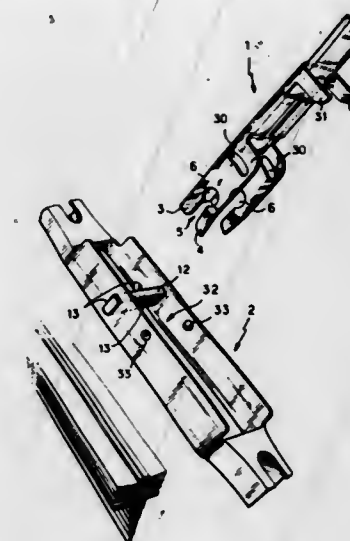
Int. Cl. A47f 1/00; B60s 1/02

U.S. Cl. 15-250.32

2 Claims

Means for attaching a windshield wiper arm to a wiper blade support, said means comprising a male member provided with a cylindrical element having two diametrically op-

posed flattened surface areas, and a female member having a slot therein equal in width to the diametral distance between



said flattened areas which terminates in a circular seat having a radius equal to that of said cylindrical member.

3,576,045

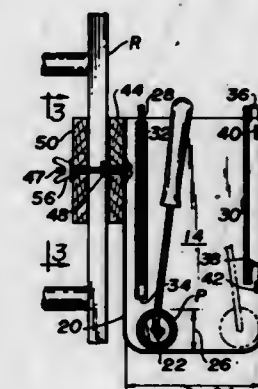
ROLLER LOADING PAINT CONTAINER AND HOLDING MEANS FOR SAID CONTAINER

Horace W. Stafford, 234 Wildwood Drive, South San Francisco, Calif. 94080

Division of Ser. No. 677,006, Oct. 27, 1967, Pat. No. 3,536,187, which is a continuation-in-part of application Ser. No. 593,083, Dec. 9, 1966, now abandoned. Filed Oct. 8, 1969,
Ser. No. 870,584

U.S. Cl. 15-257.06
Int. Cl. B44d 3/14

8 Claims



A container for paint that is to be applied by means of a roller which container has sufficient depth to permit total immersion of the roller in the paint. A paint container of sufficient depth to avoid spillage. A clamping device for effecting ready mounting of the container on a ladder. An auxiliary container for a paint brush and a clamp to attach the auxiliary container either to the main paint container or to a paint can.

3,576,046

DOOR CONTROL MEANS

William A. Czapor, Niles, Ill., assignor to Rixon Inc., Franklin Park, Ill.

Filed Jan. 9, 1969, Ser. No. 790,089

Int. Cl. E05f 3/00

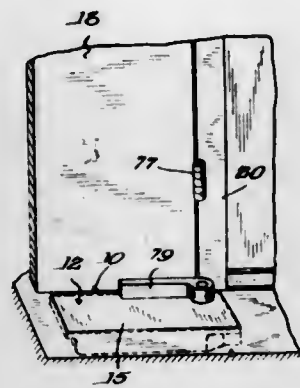
U.S. Cl. 16-55

29 Claims

Door control means in the form of a door closer employing a single cylinder and a spring mechanism in side-by-side relation, with said cylinder, spring, door hold-open device, and bearing means for the door spindle being supported on the cover plate, and with the spindle for the door being so disposed as to permit its axis to be in alignment with the axis

of any offset hanging means for the door, such as butt or pivot hinges, the door control means being easily removable

frame as the bar is shifted, all with the result that the platen and mold carried thereby are supported as the same are



for repair or replacement without having to remove the door from its hanging means.

3,576,047

SHRIMP-PEELER APPARATUS

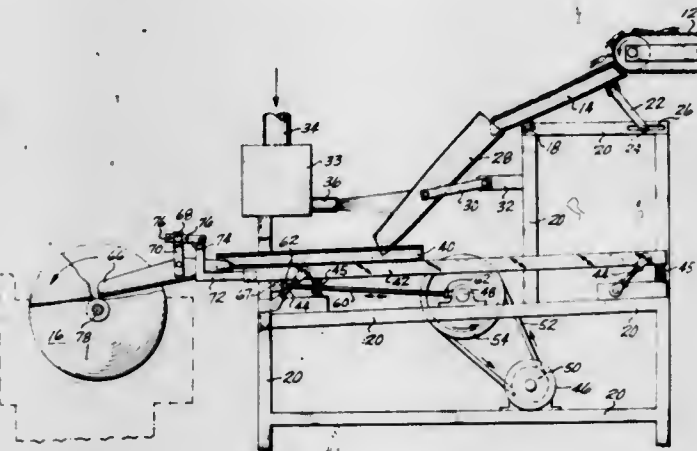
John C. Willis, Juneau, Alaska, assignor to Alaska Peelers, Inc., Seattle, Wash.

Continuation-in-part of application Ser. No. 626,848, Mar. 29, 1967, now Patent No. 3,466,699, Continuation-in-part of application Ser. No. 782,051, Dec. 9, 1968. This application Aug. 22, 1969, Ser. No. 852,317

Int. Cl. A22c 29/00

U.S. Cl. 17-73

2 Claims



Apparatus for peeling cooked shrimp including a cooker belt conveyor having shrimp spread crosswise thereof. Distributor chutes dividing shrimp from said conveyor into a plurality of separate parallel streams. An air chute and air blower for each stream so that shrimp are oriented to travel with their heads trailing down said air chute. A shaker table to maintain such orientation of shrimp position during travel and to space the shrimp so they travel in sequence one after the other. Shrimp-deshelling means receiving said shrimp traveling one after the other and with said shrimp-deshelling means comprising rotary driven shrimp-deshelling discs to receive therebetween shrimp.

3,576,048

RIDER BAR PLATEN SUPPORT FOR BLOW MOLDING MACHINES

Donald B. Stanley, Blue Springs, Mo., assignor to Industrial Plastic Corp., Grain Valley, Mo.

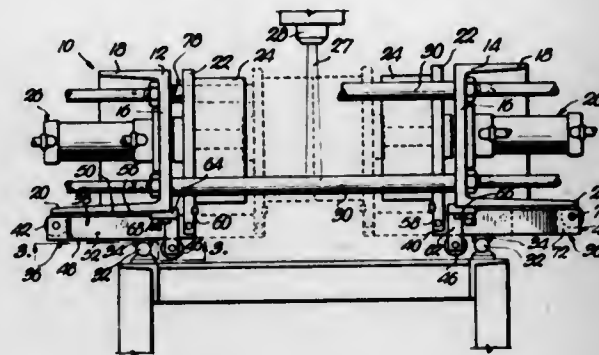
Filed May 15, 1969, Ser. No. 824,867

Int. Cl. B29c 1/16

U.S. Cl. 18-5

10 Claims

A support assembly for the shiftable platen of a blow molding machine designed to eliminate structure between the platens or molds of the molding machine, the support assembly including a rider bar having one end connected to the shiftable platen whereby the bar is shifted with the platen, there being a roller carried by the frame of the molding machine and in underlying engagement with the bar to support the same as it is shifted with the platen and a wheel carried by the free end of the rider bar, the wheel engaging the



shifted into a molding position without the necessity of structure at the center of the mold.

3,576,049

APPARATUS FOR PLASTIC CAPPING A WOODEN BROOM BLOCK BY INJECTION MOLDING

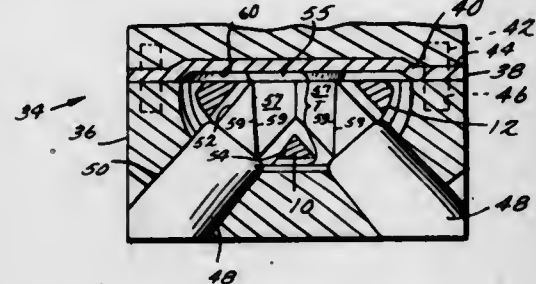
William J. Williams, 320 E. 12th St., Owensboro, Ky.

Filed Dec. 18, 1968, Ser. No. 784,839

Int. Cl. B29d 3/00

U.S. Cl. 18-36

2 Claims



The wooden block is placed in an injection mold cavity and the core side of the mold closed against the cavity. The block is somewhat thinner front-to-back than the cavity. Pins corresponding to the locations of handle sockets position the block in the cavity. Fluid plastic material is injected into the cavity from the two end extremes against the top of the block thus forcing its bristle receiving bottom face flat against the core side of the mold. Grooves in the top of the block at its ends ease flow of the plastic material as described. The mold includes removable and replaceable extension sections between the mid and two opposite end sections to accommodate capping of differing length blocks.

3,576,050

APPARATUS FOR MAKING PRESSED POWDER SLEEVES

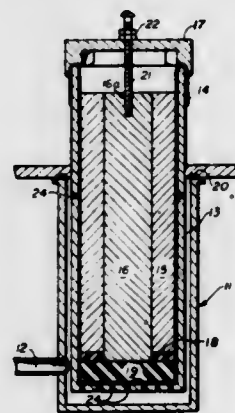
Charles R. Thomas, Albany, Oreg., assignor to the United States of America as represented by the United States Atomic Energy Commission

Filed Sept. 23, 1968, Ser. No. 761,472

Int. Cl. B29c 3/00

U.S. Cl. 18-42

1 Claim



An apparatus for preparing pressed powder sleeves by means of a centering device which positions a mandrel centrally within a sleeve mold lined with a flexible bag.

3,576,051

APPARATUS FOR PRODUCING THERMOPLASTIC FILM

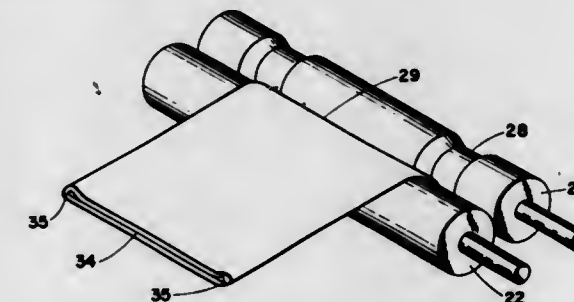
Gaylon T. Click, Deer Park, and Edward M. Banta, Baytown, Tex., assignors to Petro-Tex Chemical Corporation, Houston, Tex.

Division of Ser. No. 523,162, Jan. 26, 1966. Filed May 14, 1969, Ser. No. 840,578

Int. Cl. B29d 7/26, 23/04

U.S. Cl. 18-14S

10 Claims



The apparatus is used to flatten blown thermoplastic film so as not to produce brittle weakened folds. This is achieved by using nip rolls having relieved end sections so that a cushion of air is allowed to remain along each side where the crease would normally be found. The use of relieved end sections flatten the cushion but does not crease the film thus the film can still be easily wound into rolls yet has no creases and brittle weakness points along the side.

3,576,052

APPARATUS FOR DETACHING BATCHES OR LAYERS OF COTTON FROM A BALE OR THE LIKE

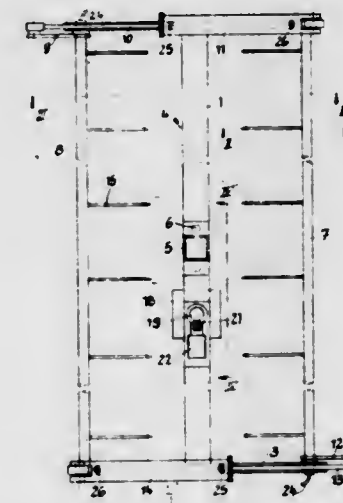
Fritz Noack, Ottobereun, Germany, assignor to Carding Specialists Canada Ltd., Toronto, Ontario, Canada

Filed Nov. 4, 1968, Ser. No. 772,917

Int. Cl. D01g 7/06

U.S. Cl. 19-81

8 Claims



Apparatus for detaching batches or layers of cotton or similar fibrous material from a bale or stack of such material, wherein a plurality of tines are caused to penetrate into the bale and are then moved away from the bale to detach a part of the same. Air under pressure is issued as jets from the free ends of the tines prior to penetration of the tines into the fibrous material.

3,576,053

CLIP MEANS FOR FOUNTAIN PENS

Chun-Tien Chiang, 35 Chang-chu Lane, Chiai, Taiwan, Republic of China

Filed Aug. 26, 1969, Ser. No. 853,036

Claims priority, application Japan, Sept. 17, 1968, 43/80034

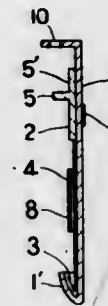
Int. Cl. B43k 25/00

U.S. Cl. 24-11

1 Claim

A clip means for fountain pens comprises a slidable member which moves upwardly and downwardly over some

distance on the upper back surface of a clip, a projection on said slidable member, and a hooked portion formed on the lower end of a wire in a bent shape. The wire depends downwardly from the lower end of said slidable member. The



upwardly folded end of said hooked portion is housed normally in a baglike portion at the lower end of the clip and passed through a hole on the side surface of a cap of a fountain pen during the rising movement of the slidable member.

3,576,054

BUNDLING STRAP

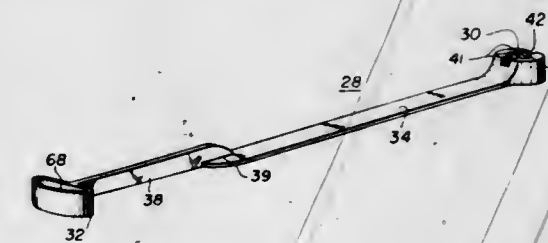
Edward Frank Rynk, Linden, N.J., assignor to Thomas & Betts Corporation, Elizabeth, N.J.

Filed Sept. 17, 1969, Ser. No. 858,711

Int. Cl. B65d 63/00; A61b 17/08

U.S. Cl. 24-16

21 Claims



A bundling strap comprised of a dual-section body extending from a dual-aperture head and terminating in a tail extension. One head aperture permits one section of the strap body to be readily received therein after the strap has been looped around the articles to be bundled. The remaining section of the body may then be received by and drawn through the other head aperture contoured to readily accept the remaining body section while providing sufficient restraining force against the strap body engaged therein to maintain the strap in the desired loop configuration. The strap body may be conveniently placed within the appropriate head aperture and drawn therethrough by means of the tail extension. Locking means may be provided within the appropriate head aperture to provide maximum resistance to the attempted withdrawal of the strap body from the head aperture after engagement therein.

3,576,055

PINTLE WIRES FOR CLIPPER SEAMS

Bryan James Gisbourne, Pleasington Blackburn, England, assignor to Scapa Dryers Limited, Blackburn, England

Filed Oct. 2, 1968, Ser. No. 775,570

Claims priority, application Great Britain, July 12, 1968, 33441/68

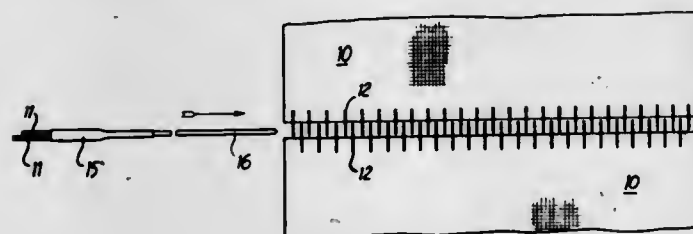
Int. Cl. F16g 3/02; A44b 19/00

U.S. Cl. 24-33

11 Claims

A pintle wire unit consists of two side-by-side pintle wires, a lead-in wire arranged in end-to-end disposition relative to the said pintle wires, and a coupling member whereby the pintle wires and lead-in wire are joined together. The coupling member may comprise an open-ended sleeve with the opposed ends of which the pintle wires and lead-in wire

are respectively engaged, and the wires may be secured to the coupling sleeve by means of an adhesive cement or by crimping the sleeve upon the wires. Alternatively, the wires



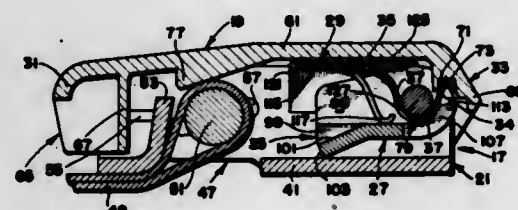
may be joined together in the requisite end-to-end disposition by forming a moulded body on the wires in the region of intended join.

3,576,058 SEATBELT BUCKLE

Edward L. Barcus, Flossmoor, Ill., assignor to Gateway Industries, Inc., Chicago, Ill.
Filed Dec. 19, 1968, Ser. No. 785,086
Int. Cl. A44b 11/25, 11/08

U.S. Cl. 24-77

10 Claims



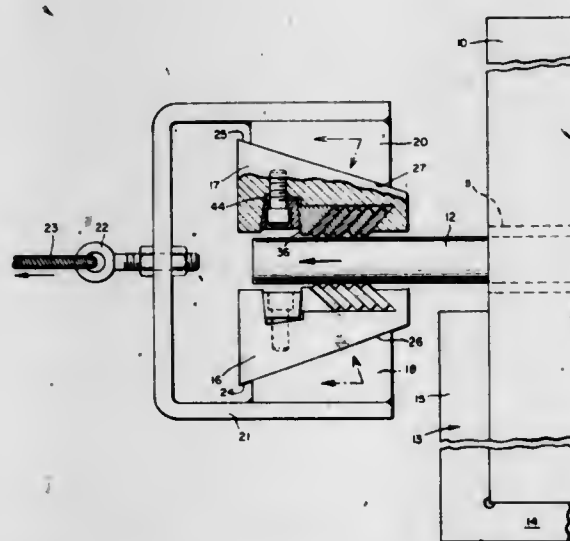
A pivotally mounted cover lever for a seatbelt buckle is biased to a closed position and held against rattling by a first leaf of a spring body which also has a second leaf urging a latching dog to its latching position.

3,576,057 GRIPPING DEVICE

Harry F. Hoy, Norristown, Pa., assignor to Luster-Jordan Manufacturing Co., Norristown, Pa.
Filed Jan. 7, 1969, Ser. No. 789,498
Int. Cl. A44b 21/00

U.S. Cl. 24-263

10 Claims



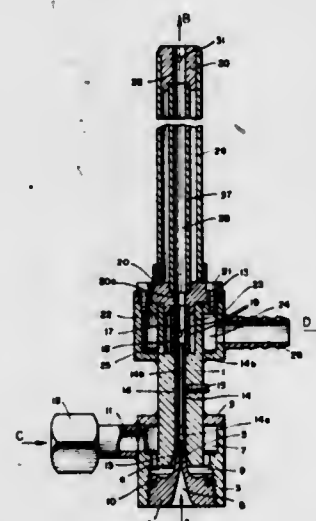
A gripping device is provided, generally in the form of two or more opposed fixtures, each having gripping teeth therein, for engaging an article to be gripped and pulled, wherein means are provided for assuring long life of the gripping fixtures.

3,576,058 PROCESS AND APPARATUS FOR THE CONTINUOUS COMPRESSION CRIMPING AND SETTING OF A MULTIFILAMENT YARN

Ernst Berg; Rudolf Hess, Elsenfeld; Rudi Wollbeck, Plankstadt, and Wolfgang Klein, Klingenberg, Germany, assignors to Glanzstoff AG, Wuppertal, Germany
Filed Apr. 9, 1969, Ser. No. 814,413
Claims priority, application Germany, Apr. 11, 1968, P 17 60 168.2
Int. Cl. D02g 1/20

U.S. Cl. 28-1.3

18 Claims



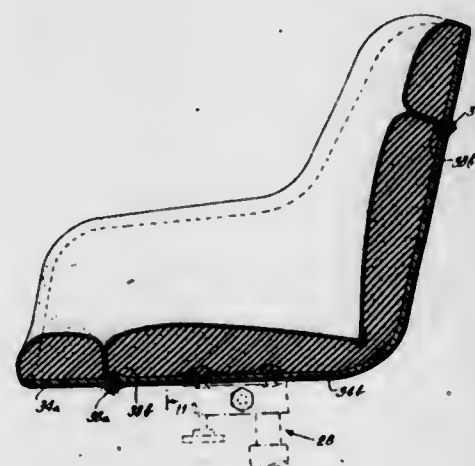
Process and apparatus for continuously crimping and heat setting a multifilament yarn in which the yarn is continuously conducted through a series of interconnected and interchangeable tubular passages, first through a restricted acceleration passage by a jet of steam injected through an annular nozzle surrounding the yarn inlet, then into an expansion chamber of substantially larger diameter and having lateral openings for the discharge of the major proportion of the steam, and then into a compression chamber as a tubular extension of the expansion chamber. The improved construction and operation permits the use of saturated steam and provides a crimped yarn with a low moisture content.

3,576,059 METHOD OF FURNITURE CONSTRUCTION

Maxwell E. Pearson, East Greenville, Pa., assignor to Knoll Associates, Inc., New York, N.Y.
Division of Ser. No. 681,803, Nov. 9, 1967, Pat. No. 3,521,929.
Filed June 3, 1969, Ser. No. 840,581
Int. Cl. B68g 7/00

U.S. Cl. 29-91.1

6 Claims



A chair or similar article of furniture employing molded shells which mate to complete an integral shell. Two shells are employed: a perimeter shell having an aperture therein and a center shell that mates with the perimeter shell so as to

close off the aperture in the perimeter shell. The two shells are advantageously molded first as one piece which is then cut into the two shells. Each shell is separately upholstered with upholstery connections being located along an edge portion of the shell. The two shells are thereafter joined together along the edge portions; upholstery connections along the edge portions are concealed between the joined-together portions.

The mating shells may incorporate flanges along the edges thereof which abut in joining the shells together. In such a case, and when one flange presents an outwardly exposed surface, a doubled-over piece of upholstery may be employed to cover the exposed surface. The doubling over of the upholstery conceals the upholstery connections into the exposed surface as well as the fastening elements used to join the two shells together. A free edge of the doubled-over upholstery is then tucked between the abutting flanges to complete the upholstery. Alternatively, an extrusion may be employed as a spacer between the abutting flanges of the two shells, with a portion thereof extending over the outwardly exposed flange surface. The extrusion may have upholstery adhered thereto, and thus conceals the upholstery connections and the fastening elements used to join one shell to the other.

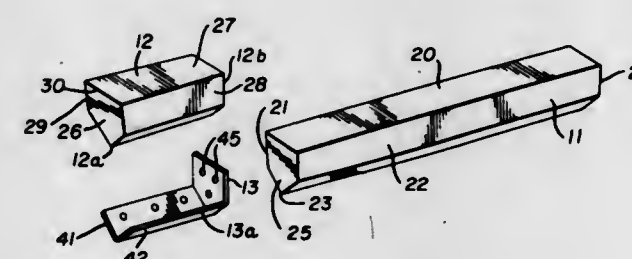
The upholstery for the perimeter shell is a machine-sewed fabric envelope, eliminating all handstitching except for the sewing of a small flap under the front of the shell.

3,576,060 INSERT BIT HAVING VIBRATION-DAMPENING PROPERTIES

William B. Stein, Barberton, Ohio, assignor to The Warner & Swasey Company, Cleveland, Ohio
Filed Mar. 28, 1968, Ser. No. 716,933
Int. Cl. B26d 1/00

U.S. Cl. 29-95

4 Claims



An elongated insert for metal cutoff tools of the type shown in Novkov U.S. Pat. No. 2,846,756 characterized by the presence of a thin layer of dampening material interposed beneath and behind the carbide cutting tip to improve the cutting characteristics of the same. The thin sheet of material or layer is contoured for coplanar relationship with the V-shaped bottom surface of the shank portion of the tool.

3,576,061 CIRCULAR SAWS WITH FACETED TEETH

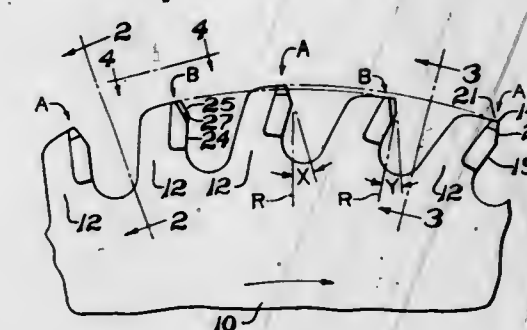
Gotthold Pahlitzsch, Braunschweig, Germany, assignor to National-Twist Drill and Tool Company, Canton, Ohio
Filed Mar. 25, 1969, Ser. No. 810,159
Claims priority, application Germany, Nov. 28, 1968, P 18 11 374.1
Int. Cl. B26d 1/12, 1/00; B23p 15/28

U.S. Cl. 29-105

2 Claims

A cutter such as a circular saw includes carbide-tipped teeth with negatively raked frontal faces and plane-shearing faces which flare rearwardly and laterally outward to form cutting edges at the intersection of the top face of the tooth.

The foregoing teeth may serve as the low teeth of a triple-chip-style saw in which high center-cutting teeth are disposed



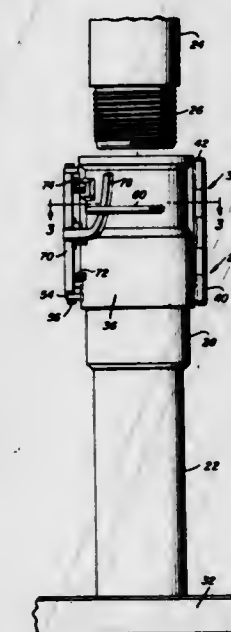
alternately between the low teeth. The high teeth are also provided with a negatively raked frontal face.

3,576,062 TUBING AND CASING STABBERS

Lee J. Matherne, 2717 West Main, Houma, La.
Filed Aug. 28, 1968, Ser. No. 755,912
Int. Cl. B23p 19/00, 19/04

U.S. Cl. 29-200

7 Claims



A stabber serving as a guide for connecting casing or tubing sections when running the casing or tubing into an oil well or the like. The stabber is a longitudinally split cylindrical member having an inclined entrance end and a cylindrical area for guiding the casing or tubing sections into engagement so that the threading operation can be conducted without danger of cross-threading, jamming or the like. The two sections are hingedly interconnected and retained in latched position by a readily releasable latch mechanism.

3,576,063 BOBBIN LUGGER AND METHOD

Franciscus C. Bakermans, Harrisburg, Pa., assignor to Berg Electronics, Inc., New Cumberland, Pa.
Filed Mar. 10, 1969, Ser. No. 805,777
Int. Cl. H05k 13/04

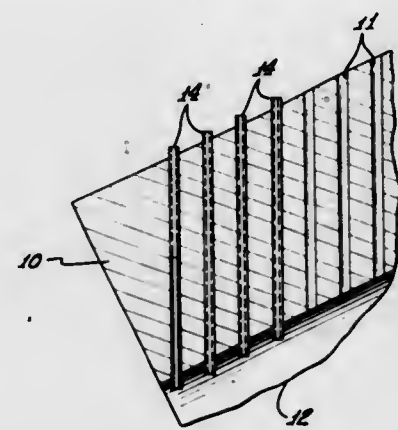
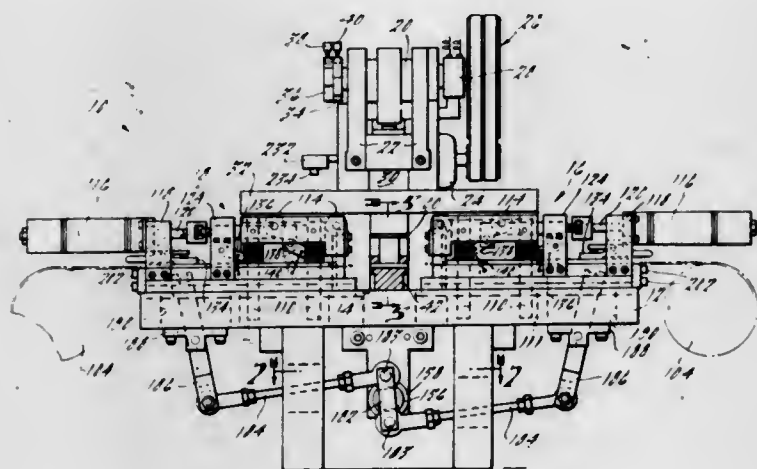
U.S. Cl. 29-203

16 Claims

A bobbin lugger and method for simultaneously attaching a number of lugs to opposite sides of a bobbin. The lugs are

first fed to lugging positions in two applicators located on opposite sides of the bobbin and are clamped in that position,

composition, closing the cracks by welding about the inserts, and removing the inserts from the apertures to restore them



following which the applicators are moved toward the bobbin to seat the lugs in the bobbin pockets.

to normal openness without necessitating expensive machining operations for restoration of the part.

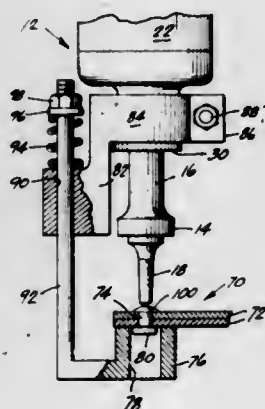
3,576,064

RIVET REMOVING TOOL AND METHOD

Earl R. Brackin, Lakewood, Calif., assignor to McDonnell Douglas Corporation, Santa Monica, Calif.
Filed Sept. 26, 1968, Ser. No. 762,722
Int. Cl. B25b 19/00; B23p 19/04

U.S. Cl. 29-254

3 Claims



Tool comprises rivet punch and driver. In preferred form punch has forward shank with blunt convex tip to engage rivet head coaxially of rivet shank. Aft body portion of punch preferably is a cylindrical shank to slidably mount in driver which is preferably conventional rivet gun, or "rattle gun." Driver rattles punch against rivet head with sufficient force to gradually shear peripheral portion of rivet head from shank and drive shank out of hole in workpiece. Tip and slightly coned shank of punch are slightly smaller than diameter of rivet shank. Size relation, nonrotation, and absence of cutting edges prevent any damage to workpiece.

3,576,065

REPAIR OF APERTURED MACHINE COMPONENTS

Lorne L. Frazier, Torrance, Calif., assignor to Chromalloy American Corporation, New York, N.Y.
Continuation-in-part of application Ser. No. 797,951, Feb. 10, 1969, now abandoned. This application Mar. 24, 1969, Ser. No. 830,557

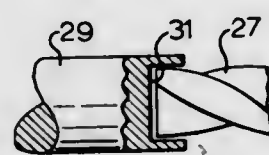
Int. Cl. B22d 19/10; B23p 7/04, 17/00

U.S. Cl. 29-402

11 Claims

Machine parts subject to heating in service, particularly hollow engine nozzle guide vanes apertured for internal cooling, are repaired to close cracks that develop at the aperture locations by inserting into the apertures tubes of siliceous

composition, closing the cracks by welding about the inserts, and removing the inserts from the apertures to restore them to normal openness without necessitating expensive machining operations for restoration of the part.



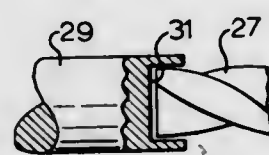
3,576,067

FRICTION WELDING IRREGULARLY SHAPED OBJECTS

Calvin D. Loyd, and Ralph W. Yocum, Peoria, Ill., assignors to Caterpillar Tractor Co., Peoria, Ill.
Filed Feb. 28, 1968, Ser. No. 709,018
Int. Cl. B23k 23/00

U.S. Cl. 29-470.3

1 Claim



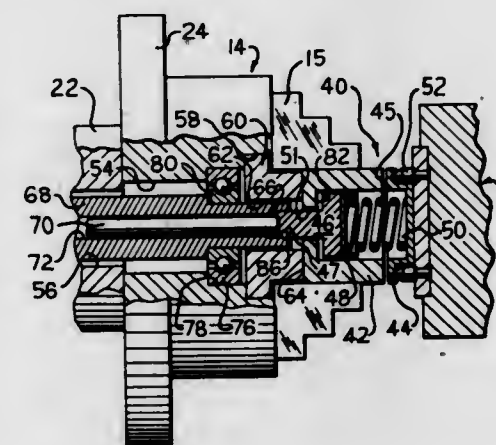
3,576,068

FRICTION WELDING A MULTIPART SPRING-LOADED ASSEMBLY

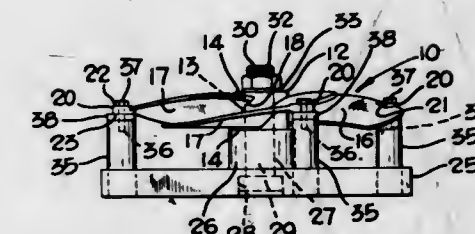
James F. Justice, Dearborn, Mich., and Ralph W. Yocum, Peoria, Ill., assignors to Caterpillar Tractor Co., Peoria, Ill.
Filed Oct. 22, 1968, Ser. No. 769,570
Int. Cl. B23k 27/00

U.S. Cl. 29-470.3

2 Claims



A multipart spring-loaded assembly having a housing, plunger, spring and end cap is friction welded by holding the housing in a rotating chuck while holding the end cap in a stationary chuck and placing a preload upon the plunger and spring so that they are not in contact with the rotating housing member during the welding operation.



machined to contour, then shot peened. The peening hardens the machined surface, increasing its bending resistance, to minimize warping when the casting is released from restraint.

3,576,071

SAFETY RAZOR HEAD COVER

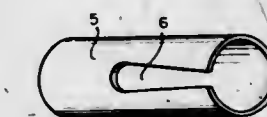
Frederick H. Eriksen, 3500 Division St. Apt. #188, Metairie, La.

Filed May 10, 1968, Ser. No. 728,235

Int. Cl. B26b 21/40

U.S. Cl. 30-90

2 Claims



PROCESS FOR FORMING A COMPOSITE BUILDING CONSTRUCTION

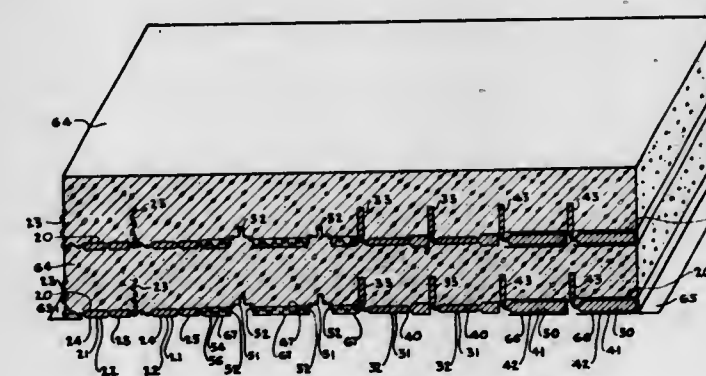
Edward Augustus Proctor, 3417 Clarendon Road, Cleveland Heights, Ohio

Filed May 23, 1969, Ser. No. 827,314

Int. Cl. B23p 17/00

U.S. Cl. 29-527.1

9 Claims



A method of forming a composite building construction in which, an angular flap piece, having a first portion and a second portion separated by a tractable bend line, is partially embedded in a slab. A hardenable fluid material is poured around the first portion and against the second portion so that upon solidifying the fluid material forms the slab in which the first portion is embedded and with which the second portion maintains a contact and subsequently the second portion is peeled away from the slab by bending the flap piece at the bend line so as to fashion a transverse reinforcement for the slab.

A safety razor head cover for shielding the edges of a razor blade operably mounted in said head for preventing the dulling of said edges and the cutting of adjacent articles stored therewith comprising a section of annular pipe or flexible sleeve at least as long as the razor blade and defining a tear drop longitudinal recess or slot for receiving the handle of said razor, and having a rest diameter less than the width of the razor head but when longitudinally compressed being wider than said head and thicker to slide over said head and blade mounted therein, the razor handle engaging in the slot, and upon release of said compression gripping said head but leaving said edges unengaged from any contact.

3,576,072

SURGICAL INSTRUMENT

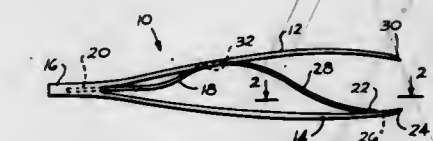
James Bernard Turner Foster, Baltimore, Md. (67 W. 37th St., Bayonne, N.J. 07002)

Filed Sept. 29, 1969, Ser. No. 861,657

Int. Cl. B25f 1/04

U.S. Cl. 30-124

15 Claims



WARPAGE MINIMIZING PROCESS FOR MACHINING METAL CASTINGS

John T. Parsons, 205 Wellington, Traverse City, Mich.

Filed May 9, 1969, Ser. No. 823,433

Int. Cl. B23p 13/04

U.S. Cl. 29-558

4 Claims

A process of machining metal castings to minimize warping, especially useful in manufacturing propellers. When the casting is mounted for machining its shallow parts are

Surgical forceps for cutting and removing skin sutures, comprising tweezerlike grasping arms with a suture-receiving lateral slot near the tip of one arm, and a member intermediate the arms which advances across the slot to part a suture held there, when the arms are squeezed together.

3,576,073

SECURING MEANS FOR A DENTAL RETAINING SPLINT

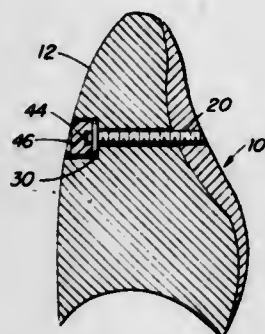
Bernard Weissman, 304 Ashland Place, Brooklyn, N.Y.

Filed May 19, 1969, Ser. No. 825,735

Int. Cl. A61c 13/22

U.S. Cl. 32-6

12 Claims



Securing means for a dental splint used in the reinforcement and retention of teeth in the mouth comprising a securing member having a head and threaded shank portions, a collar intermediate the head and threaded shank portions, and covering means provided for said head portion.

3,576,074

DENTAL ENDOSSEOUS ROOT IMPLANT

Sidney D. Gault, 810 D Skokie Hwy, Wilmette, Ill., and

Gerald M. Silverman, 4250 Marine Drive, Chicago, Ill.

Filed July 15, 1968, Ser. No. 744,739

Int. Cl. A61c 13/00

U.S. Cl. 32-10

1 Claim



The invention relates to a dental endosseous root implant with a first part to be completely embedded in and covered over in a tooth socket and a second part carrying a crown or other prosthetic device. The first part has a root portion or dowel-receiving socket on a crown base or platform with an integral surrounding tapered latticed body freely fitting in the tooth socket or prepared bone socket through which bone tissue may grow to embed and secure the dowel-receiving socket in the alveolar process. The second part has a dowel fitting the socket and carries a crown or the like. The implant technique involves selection of a properly sized root implant or dowel-receiving socket to fit freely but snugly into the tooth socket anytime after extraction of the tooth being especially applicable immediately after extraction of the tooth. The gingival tissue over the root implant is then approximated and sutured together. A blood clot fills the socket around the endosseous root implant and is gradually replaced by a fibrous meshwork. The final stage of healing results in continued deposition of bone around and through the latticed body. During the entire period of healing the root implant is under no occlusal or biting stress nor disturbed by the bacterial flora or oral debris since it was completely embedded in the socket and covered over by oral mucosal tissue. The bone tissue embeds the device and the sealed socket

is then exposed only at the top of the root implant whereupon the second or more parts including a dowel crown is firmly attached to the root implant.

3,576,075

ORTHODONIC DEVICE

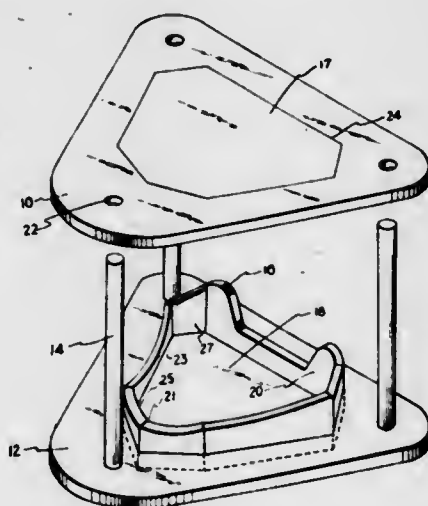
Edward A. Scott, 11221 Barclay Drive, Garden Grove, Calif.

Filed Feb. 27, 1969, Ser. No. 803,006

Int. Cl. A61c 11/00

U.S. Cl. 32-32

7 Claims



A jig for the fabrication of orthodontic casts which comprises first and second plates separated by several vertical posts that maintain a fixed vertical spacing between the plates. The plates support model molds in opposed relationship. An alignment bracket is also provided for vertical alignment of the first model. The jig is used by placing plaster in one mold, embedding the first of a set of maxillary and mandibular models, preferably the mandibular, of a patient's teeth in the plaster and aligning the model with the alignment bracket to insure that the occlusion plane lies about midway between the finished casts. The mold on the second plate is then filled with plaster, the second model, preferably the maxillary, is temporarily attached to the model in the hardened cast and the assembly is inverted and placed over the plate with the soft plaster by engaging the vertical posts between the plates. This presses the second model into the soft plaster to a uniform depth and insures the preparation of precisely shaped casts.

3,576,076

ADJUSTABLE ROTATABLE TOOL AND A HOLDER THEREFOR

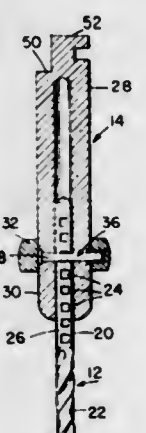
Bernard Weissman, 304 Ashland Place, Brooklyn, N.Y.

Filed June 13, 1969, Ser. No. 832,940

Int. Cl. A61c 3/02

U.S. Cl. 32-48

10 Claims



In combination an adjustable rotatable tool, e.g., dental drill and a holder therefor, the drill comprising a straight shank drill provided with graduated recesses along its shank,

3,576,079

GARMENT STEAMING AND DRYING APPARATUS

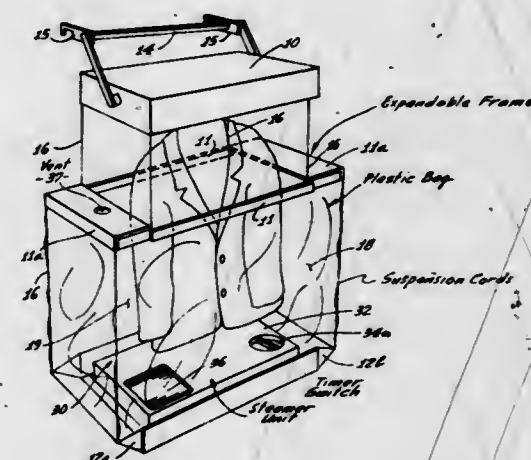
Stephen G. Hauser, Encino, Calif., assignor to BKG Incorporated, Los Angeles, Calif.

Filed Jan. 26, 1970, Ser. No. 5,625

Int. Cl. F26b 21/06

U.S. Cl. 34-46

8 Claims



An improved garment steaming and drying apparatus is provided which has a rigid top and rigid base and an enclosure means which define a chamber in which the garments to be pressed may be hung. The apparatus of the present invention includes an improved unit which may be mounted in the base of the assembly to supply steam and hot air to the chamber, and which is compact and light so that the assembly may be readily portable, if so desired. The invention in one embodiment is constructed to have collapsible sides and a retractable top and base so as to be capable of being formed into a compact flat package when not in use so that it may conveniently be packed into a handbag or suitcase.

3,576,080

ROTARY COOLER AND THE LIKE

Robert M. Bilemeister; Ellis P. Hansen, Milwaukee, Wis., and

David P. Lohman, New Martinsville, W. Va., assignors to

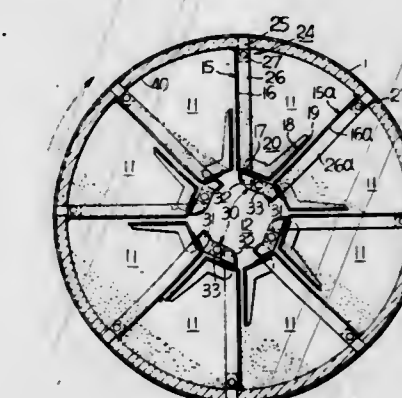
Allis-Chalmers Manufacturing Company, Milwaukee, Wis.

Filed Nov. 19, 1969, Ser. No. 877,967

Int. Cl. F26b 11/06

U.S. Cl. 34-109

9 Claims



A rotary cooler is disclosed having a cylindrical shell mounted to rotate about its central axis. The interior of the shell is provided with parts assembled in groups to divide the interior cells. Each of the cell defining assemblies include a pair of wall structures and each wall structure has a radially inward projecting and axially extending surface forming a scoop which in end view is a J-shaped having a back portion, a bottom portion and a lip portion defining a pocket therebetween. Each wall structure is arranged with the pocket on an end thereof projecting radially inward, and the back portion remote of the pocket is pivotally connected at longitudinally spaced locations to the inner periphery of the cooler shell by a pin parallel to the central axis of the cooler shell. The radially inner end of each wall structure is connected at longitudinally spaced locations to one adjacent wall

3,576,077

HOLE DIAMETER MEASURING GAUGE

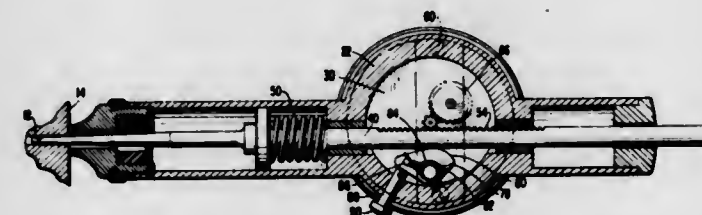
Rodney E. Moseman, Lititz, Pa., assignor to Hamilton Watch Company, Lancaster, Pa.

Filed Feb. 24, 1969, Ser. No. 801,494

Int. Cl. G01b 5/12

U.S. Cl. 33-178

8 Claims



The measuring gauge has an elongated cylindrical casing housing a plunger mounted for axial reciprocal movement and carrying a constantly tapered measuring needle at one end externally of the casing. The plunger is biased to a fully-extended position by a helical spring and carries a rack engageable with a pinion which drives a hand on a dial readout. A second hand is geared to the first pinion and the dial hands provide coarse and fine readouts. Insertion of the tapered needle into the hole with the corresponding end of the casing moved to butt the annular margin about the hole provides a hole diameter readout on the dial. A cam locks the plunger member in the measuring position, whereby the needle may be withdrawn from the hole and retained in the measuring position.

3,576,078

PAPER DRYING PROCESS AND APPARATUS

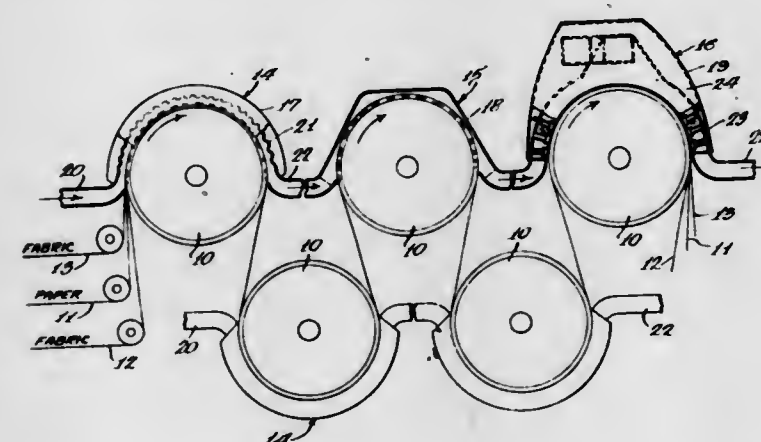
Sherwood G. Holt, Wisconsin Rapids, Wis., assignor to Consolidated Papers, Inc., Wisconsin Rapids, Wis.

Filed Feb. 2, 1970, Ser. No. 7,815

Int. Cl. F26b 3/00

U.S. Cl. 34-23

4 Claims



A process and apparatus for drying webs of newly formed paper material in the dryer section of a paper making machine having a plurality of rotatable dryer drums over which the paper web is guided in serial heat exchange relationship while the web is disposed between open mesh dryer fabric endless belts and the web is scrubbed by air circulated through the meshes of the fabric while moving beneath hoods embracing the dryer drums.

structure by a hinge. Each hinge has a midhinge pivot pin parallel to the central axis of the cooler shell. Thus each hinge has a pivot pin which is part of cell defining assembly with two parallel pins at the inner periphery of the cooler shell and each such group of three pins provides pivotal and axially slidable connections that accommodate movement of the parts of their cell defining assembly relative to each other and relative to the shell upon thermal expansion of the parts without rupturing such parts.

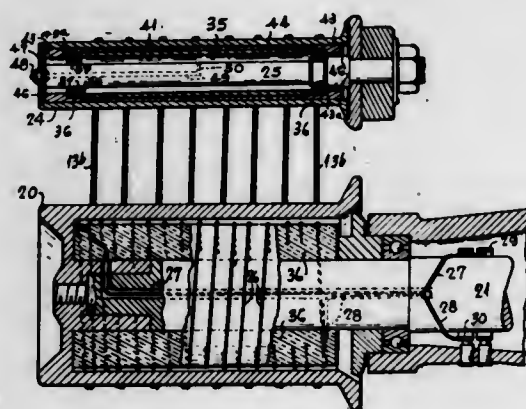
3,576,081

COMBINATION STRAND-DRYING AND BEARING-LUBRICATION APPARATUS

William G. McCrary, 3220 Brixton Court, Charlotte, N.C.
Filed Dec. 17, 1969, Ser. No. 885,816
Int. Cl. F26b 13/00

U.S. Cl. 34—153

5 Claims



A combination strand-drying and bearing-lubrication unit for a godet thermoplastic strand processing assembly having a driven cantilevered heated roller and a companion cantilevered unheated idler roller. In operation, a strand is continuously fed onto one end of both rollers, after which it is conveyed automatically under tension in an approximately helical path to the takeoff end during which the helical strand portion transfers heat from the heated to the unheated roller in progressively increasing amounts. In order to obtain a highly effective heat distribution throughout the length of the exterior drying surface of the idler roller and throughout its interior bearing surfaces, the idler roller is provided with a reservoir in which a fluid medium such as oil or grease is confined in heat exchange relationship with both the drying and bearing surfaces.

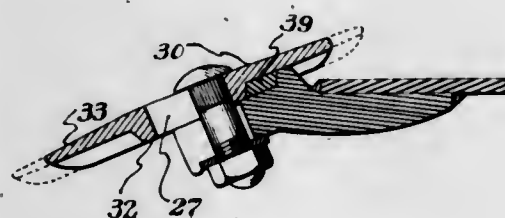
3,576,082

DIGGER TOOTH AND MOUNTING THEREFOR

Ernest C. Lowrey, 2315 Flower St., Los Angeles, Calif.
Filed Apr. 15, 1969, Ser. No. 816,347
Int. Cl. E02f 9/28

U.S. Cl. 37—142

5 Claims



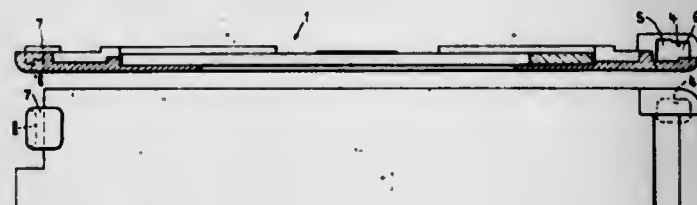
A digger tooth is held by a bolt against a beveled mounting so that in use the tooth is tightened against the bolt by a wedge action, so as to tension the bolt rather than to shear it. The tooth is double ended and receives the bolt in a slot to avoid shearing the bolt. The tooth is V-shaped in cross section and tapered in thickness.

3,576,083
MOUNTING FOR RECEIVING OBJECTS TO BE FRAMED
Arnold Perrot, P. O. Box Martiwag 4, CH 2560 Nidau, Switzerland

Filed Aug. 15, 1969, Ser. No. 850,458
Claims priority, application Switzerland, Sept. 24, 1968,
14,268/68
Int. Cl. G09f 1/12

U.S. Cl. 40—152

3 Claims



A collapsible two-part mounting for receiving flat objects such as, for instance, transparencies, comprising a first mounting part with hinge-pins and a second mounting part with hinge-bearing pans supporting said hinge-pins and being oblong in a direction across the hinge-axis of the hinge-pins to allow movement of said mounting parts relatively to each other in the mounting plane in their collapsed position, improvements on said bearing pans for facilitating the opening of the mounting and for guaranteeing exact parallel position of the objects to be framed in locked condition.

3,576,084

ADJUSTABLE GUN REST

William B. Anderson, Jr., 551 Fletcher Road, Wayne, Pa.
Filed May 16, 1969, Ser. No. 825,351
Int. Cl. F41c 29/00

U.S. Cl. 42—94

7 Claims



Apparatus for supporting a firearm and having a support arm adjustably mounted on a post which is adapted to penetrate the earth a predetermined distance. The center of gravity of the support arm and rifle is disposed directly above the point of earth penetration to provide a stable rest.

3,576,085

PACKAGE TOY

Steven A. Nelson, Palos Verdes Estates, Calif., assignor to
Mattel, Inc., Hawthorne, Calif.
Filed May 5, 1969, Ser. No. 821,766
Int. Cl. A63h 33/00

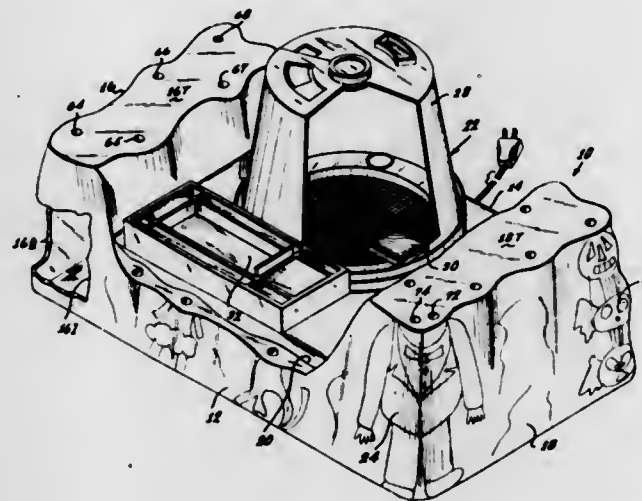
U.S. Cl. 46—11

4 Claims

A toy-holding package which itself serves as a plaything comprising a structure with a central depression for holding a toy set and surrounding walls that have the appearance of human or animal bodies. Several heads are provided in the toy set which can be inserted into holes on the package walls

to form complete figures. The heads are supplied in the form of tiles of a "memory" plastic that can be heated for growing

sociation with the mounting member and adjustment to a locking condition, the attached limb being movable between



into the shape of heads, and the toy set includes a heating chamber.

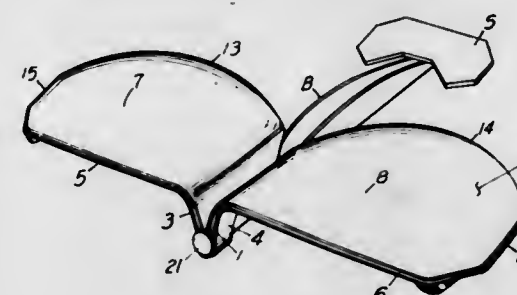
3,576,086

TOY GLIDER AND METHOD FOR CONSTRUCTING SAME

Richard S. Halsey, 2593 Riggs Drive, East Point, Ga.
Filed Oct. 30, 1968, Ser. No. 771,740
Int. Cl. A63h 27/00

U.S. Cl. 46—79

4 Claims



A toy glider constructed from expanded polystyrene with a wing having a V-shaped center section, a thickened leading edge having no dihedral at the leading edge and having a generally elliptical semispan trailing edge in planform with maximum chord outboard of half of the semispan. The maximum chamber of the wing occurs at the maximum chord with extreme "wash out" twist in the form of upward twist on the trailing edge of the wing from zero at the root to a maximum at the tip. The tip-leading edge of the wings has triangular projections on its underside for stability and minimization of tip vortex. The boom or body is constructed of expanded polystyrene formed into a V-shaped cross section and attached to the center section of the wing trailing edge. A balancing weight is located in the leading edge's center, and a flat horizontal stabilizer is attached to the aft end of the body.

3,576,087

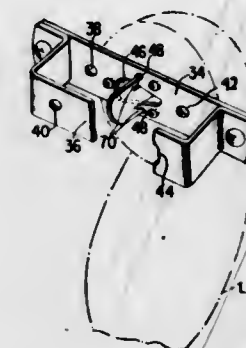
WALKING DOLL INCLUDING DEVICE FOR ATTACHING A LIMB TO A LIMB MOUNTING MEMBER

Robert Gardel, 11 Riverside Drive, New York, N.Y., and
Egon Gorsky, 165 E. 46th St., Brooklyn, N.Y.
Division of Ser. No. 626,601, Mar. 28, 1967, Pat. No. 3,421,258.
Filed Nov. 1, 1968, Ser. No. 772,570
Int. Cl. A63h 3/20

U.S. Cl. 46—161

3 Claims

Means for attaching a limb of a toy figure such as a doll to a limb-mounting member connected to the torso, designed for installation in the limb in a preset condition ready for as-



a plurality of positions in each of which it is releasably retained.

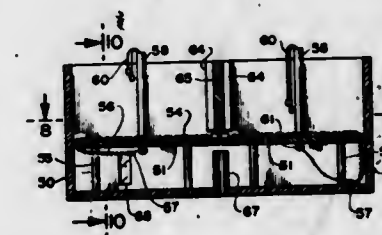
3,576,088

PLANT RECEPTACLE WITH WATER SUPPLY

Rene Arca, 71—11 Yellowstone Blvd., Forest Hills, N.Y.
Filed Dec. 20, 1968, Ser. No. 785,506
Int. Cl. A01g 27/00

U.S. Cl. 47—38.1

5 Claims



A self-watering plant receptacle contains water in its bottom portion over which is disposed a perforated soil support covered with a material which extends over a side of the soil support into the water to form a wick. A filling tube extends down from the upper edge of the container through the soil support, the filling tube containing filaments extending therethrough connected to the bottom of the wick to draw it from the water and control water intake thereby.

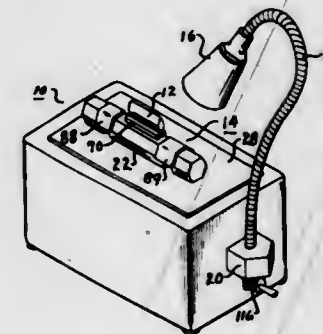
3,576,089

HONING AND SHARPENING MACHINE

Victor E. Magnuson, 1818 Linden Ave., Mishawaka, Ind.
Filed Jan. 15, 1968, Ser. No. 697,953
Int. Cl. B24b 7/00, 9/00, 23/00

U.S. Cl. 51—59

6 Claims



A honing and sharpening machine for small tools and instruments such as those used by dentists, having a housing with an upper panel on which is mounted a reciprocating carriage for a honing or sharpening stone. The carriage is supported by a pair of end members rigidly mounted on the panel and is driven by a motor disposed in the housing beneath the carriage. The carriage and stone are reciprocated rapidly by the motor and the stone may be contoured to provide the optimum surface for shaping and reconditioning the tools and instruments.

3,576,090

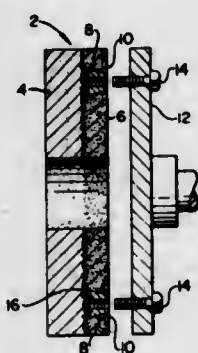
ABRASIVE DISC AND METHOD OF MAKING IT
 Frank O. Shoemaker, Palos Park, Ill., assignor to The Bendix Corporation

Filed Sept. 28, 1967, Ser. No. 671,309

Int. Cl. B24d 7/04, 11/00; C04b 31/16

U.S. Cl. 51-209

5 Claims



A reinforced abrasive disc and method for making it wherein the reinforcing member is placed at the junction between the usable and nonusable layers of abrasive material, the reinforcing member being independent and spaced apart from the anchor nuts embedded in the nonusable layer of abrasive material which are used to secure the disc to a rotatable support wheel.

3,576,091

DRYWALL JOINT SYSTEMS AND METHOD FOR MAKING THE SAME

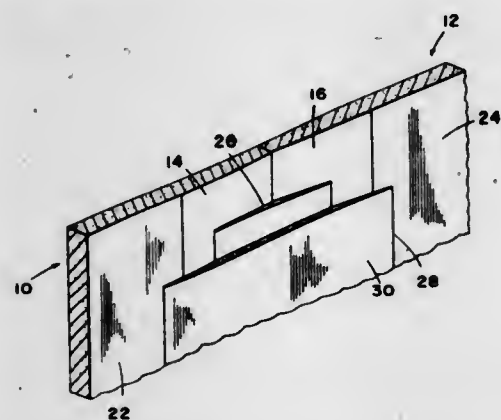
John D. Shull, Jr.; Richard E. Smith, Tonawanda; Joseph W. Schneller, Williamsville, and William R. Burke, Tonawanda, N.Y., assignors to National Gypsum Company, Buffalo, N.Y.

Filed July 24, 1969, Ser. No. 844,306

Int. Cl. E04b 2/72

U.S. Cl. 52-309

17 Claims



A method for forming drywall joint systems wherein abutting edges of adjacent wallboard panels are adjoined by a thermoplastic adhesive substance which acquires its adhesive properties when heated and allowed to cool. The thermoplastic adhesive is applied to the joint formed by adjacent wallboard panels after they are erected or it is preapplied and then reheated after wallboard erection. Joint systems formed according to the method may consist of the thermoplastic adhesive substance alone or with other joint-forming materials such as joint-reinforcing tape and/or a cementitious adhesive.

3,576,092

INSERT PANEL SUPPORT STRUCTURE

Ernst Halpern, Plainview, N.Y., assignor to Williamsburg Steel Products, Co., Brooklyn, N.Y.

Filed Feb. 24, 1969, Ser. No. 801,394

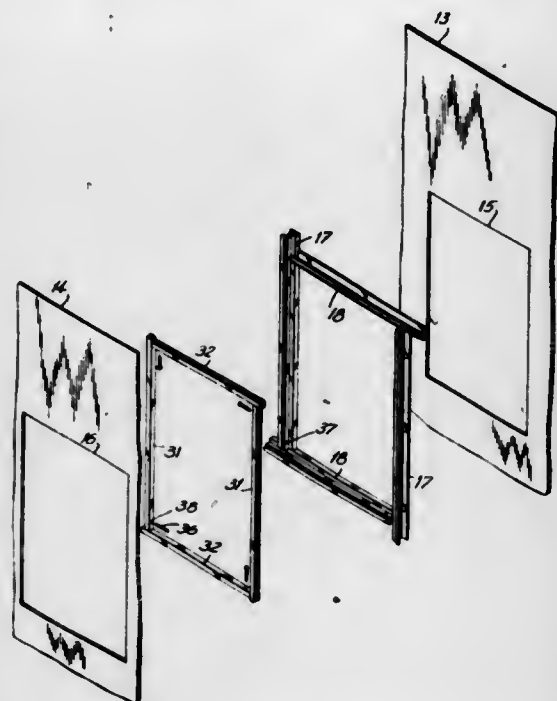
Int. Cl. E06b 3/54

U.S. Cl. 52-456

8 Claims

An insert panel support structure especially adapted for use in a hollow metal door to frame an opening for an insert panel, such as a glass panel. The channels defining the support structure are longer than the length of the respective

sides of the opening and need not be cut to length to preform a support structure of a predetermined size. The channels are



so arranged that the end of one channel abuts an overlapping mating channel to frame the opening.

3,576,093

AUTOMATIC FILM-WRAPPING APPARATUS

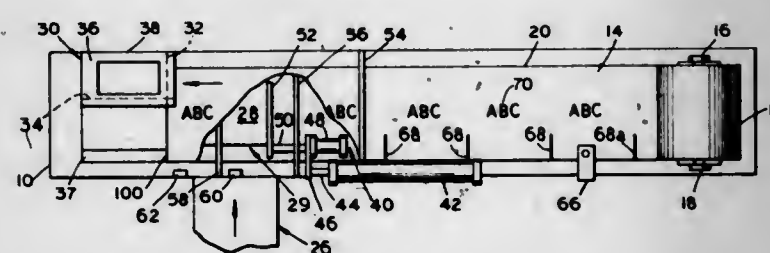
Seymour Zelnick, Orange, N.J., assignor to Weldotron Corporation, Newark, N.J.

Filed Aug. 1, 1969, Ser. No. 846,887

Int. Cl. B65b 41/18, 57/00

U.S. Cl. 53-51

10 Claims



Apparatus provided for the feeding of articles attendant the wrapping and sealing thereof in printed, center-folded webs of article-wrapping film materials and comprises means to move said articles, means to move said article moving means, and means to discontinue movement of the articles by the article moving means despite the continuation of the movement thereof by the means to move the same. Said article moving means and the means to move the same may take the form of mechanically connected fluid actuated piston-cylinder assemblies, and means which take the form of detecting means to detect print registration marks which are formed on said web, are included to operate said article movement means to discontinue movement thereby of said articles upon detection of a said print registration mark.

3,576,094

STOP MOTION FOR BOBBIN LOADING APPARATUS

Richard J. Savageau, Seneca; William H. Drake, Clemson; Herman D. Sherron, Jr., Seneca, and George S. VanDeusen, Clemson, S.C., assignors to Maremont Corporation, Chicago, Ill.

Filed Oct. 9, 1969, Ser. No. 865,021

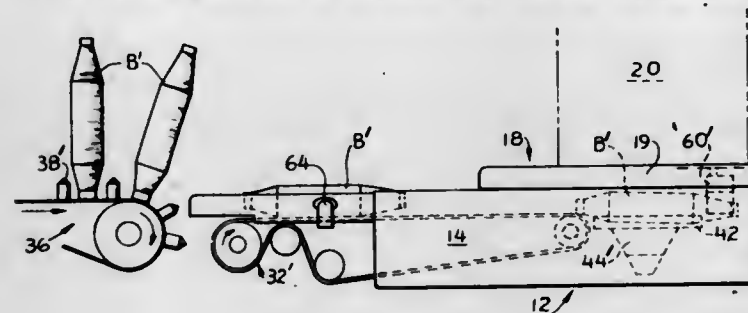
Int. Cl. B65b 57/10, 57/10

U.S. Cl. 53-59

12 Claims

Apparatus for bottom-loading textile bobbins into platform-supported receptacles, following conveyance of the bobbins from along opposite sides of a spinning frame or like machine, having stop motion switches operable in response to upward movement of the loading platform and/or to

blockage of either of two feed conveyors extending thereto. Blockage of one of the conveyors stops the conveying and loading operations on that one side of the apparatus only. The loading platform is mounted for vertical displacement in



response to an upward force exerted at substantially any location upon its undersurface, and for upward pivotal movement about one edge to facilitate servicing, but is laterally restrained at all times.

3,576,095

UNIT FILTER ASSEMBLY

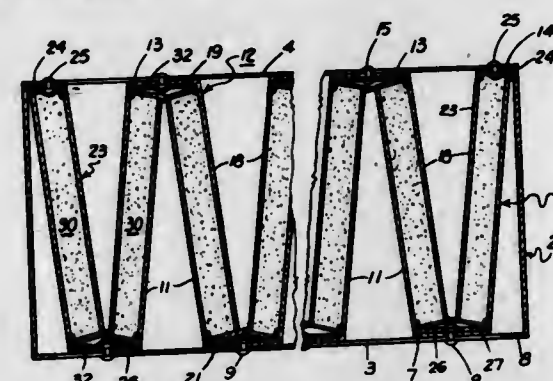
Richard D. Rivers, Louisville, Ky., assignor to American Air Filter Company, Inc., Louisville, Ky.

Filed Aug. 29, 1969, Ser. No. 854,173

Int. Cl. B01d 25/06

U.S. Cl. 55-484

5 Claims



A unit filter assembly including filter media plenum chambers formed by interrelated sets of U-shaped members having perforated flanks with interlaced, notched flange portions extending outwardly from the flanks to space such flanks and form plenum chambers therebetween.

3,576,096

FILTER FRAME LATCHING ASSEMBLY

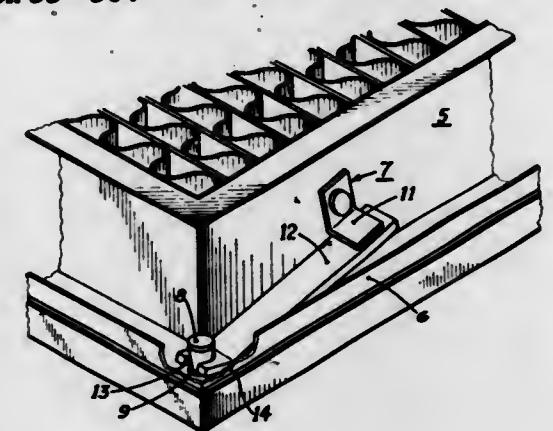
Richard D. Rivers, Louisville, Ky., assignor to American Air Filter Company, Inc., Louisville, Ky.

Filed June 19, 1969, Ser. No. 834,806

Int. Cl. B01d 25/00

U.S. Cl. 55-504

3 Claims



A filter frame latching assembly to fasten the marginal sealing edge of an open end flow-through filter frame to the marginal sealing edge of an open end support frame includ-

ing a plurality of bite post members extending from the sealing edge of the support frame through aligned apertures in the sealing edge of the filter frame, the bite posts being engaged by longitudinal fastening bars extending between the bite posts and stop members mounted in the sidewalls of a filter frame.

3,576,097

ADJUSTABLE REEL MOWER

Ralph W. Speiser, Minneapolis, Minn., assignor to Toro Manufacturing Corporation, Minneapolis, Minn.

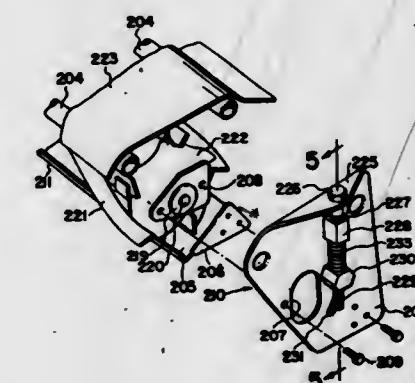
Division of Ser. No. 390,704, Aug. 19, 1964, Pat. No. 3,410,063.

Filed Oct. 17, 1968, Ser. No. 785,421

Int. Cl. A01d 55/20

U.S. Cl. 56-249

13 Claims



A yieldable adjustable mechanism for controlling the cutting relationship between the rotating blades and stationary bed-knife of a reel mower in which the reel is mounted on the supporting frame for pivotal movement relative thereto about an axis spaced from but parallel to the axis of the reel. The reel includes a lug which is threadably engaged by an adjusting bolt, which bolt is supported by an end plate of the frame and is rotatable and slidable relative thereto. Turning of the bolt adjusts the cutting relationship between the reel and the bed-knife and if the cutting reel moves upwardly such as by interposition of an object between the reel and the bed-knife, the bolt slidingly yields relative to the end plate which normally supports it. A coiled spring is mounted on the bolt and interposed between the lug and the frame to continuously bias the reel towards the bed-knife. Mechanism for adjusting the tension of the spring comprising a threaded sleeve slidably and rotatably mounted on the bolt and a non-rotatable lug threadably engaged with said sleeve are interposed between the spring and the frame whereby turning of the sleeve causes movement of the lug, which movement varies the tension on the spring.

The following disclosure contains a correct and full description of the invention and of the best mode known to the inventor of taking advantage of the same.

3,576,098

FORGED CUTTER BLADE

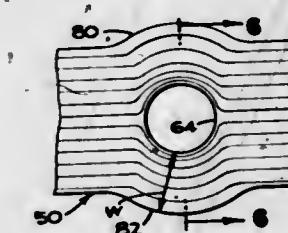
William L. Brewer, Minden, La., assignor to FMC Corporation, San Jose, Calif.

Filed Apr. 16, 1969, Ser. No. 816,731

Int. Cl. A01d 55/18

U.S. Cl. 56-295

2 Claims



A machine is disclosed for making a blade for a rotary cutting machine having one end pivotally mounted to permit the blade to swing back upon striking an obstruction. The

blade includes a mounting hole formed by displacement of the blade material so that the blade substantially retains its original strength in the vicinity of the mounting hole.

3,576,099

SOLID STATE TIMEPIECE HAVING ELECTRO-OPTICAL TIME DISPLAY

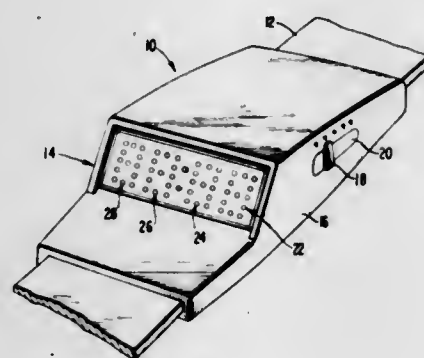
Richard S. Walton, Lancaster, Pa., assignor to Hamilton Watch Company, Lancaster, Pa.

Filed Apr. 22, 1969, Ser. No. 818,228

Int. Cl. G04b 19/30

U.S. Cl. 58—50

24 Claims



There is disclosed herein an electronic solid-state time piece having an electro-optical display such as an integrated semiconductor light emitting diode structure. The display is provided by four or six digit forming display indicators giving a digital readout of hours, minutes and, if desired, second. The device includes electronic time signal generating circuitry, display drive circuitry and display interrogation and scanning means. A time setting mechanism is also provided.

3,576,100

DATE-WATCH

Kurt Vogt, Bienne, Switzerland, assignor to OMEGA Louis Brandt & Frere S.A., Bienne Bern, Switzerland

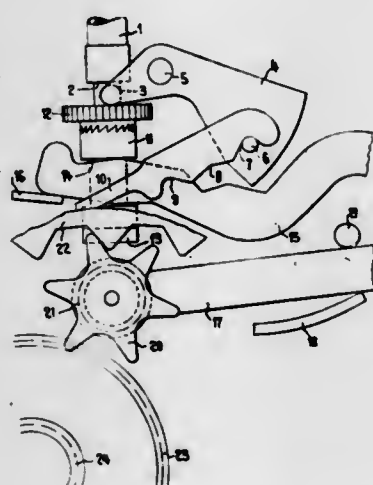
Filed Dec. 19, 1969, Ser. No. 886,484

Claims priority, application Switzerland, Jan. 16, 1969, 552/69

Int. Cl. G04b 19/24

U.S. Cl. 58—58

4 Claims



Date-watch, having a winding stem which may be given three distinct axial positions permitting winding the watch, correcting the date and setting the hands, respectively, and comprising a clutch-pinion actuated by a yoke which is itself operated by a setting lever one end of which fits into a groove of the winding stem. A lever is controlled by the said yoke and carries a date corrector. The whole is arranged in such a way that the clutch-pinion can drive the date-disc only when the winding stem is in its second axial position.

3,576,101 COMBINED DIESEL AND GAS TURBINE POWER UNIT

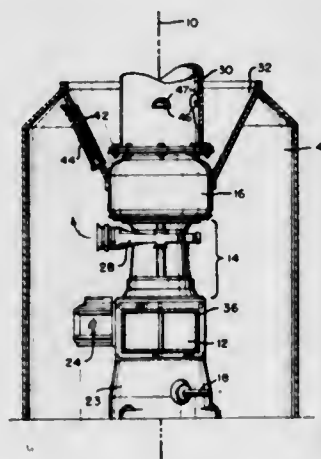
Earl Oliver Setterblade, Shelton, Conn., assignor to Avco Corporation, Cincinnati, Ohio

Filed July 30, 1969, Ser. No. 845,948

Int. Cl. F01k 23/14; F02c 7/10

U.S. Cl. 60—11

1 Claim



A vertically mounted turbine engine includes air inlet means surrounding, at least in part, an upwardly extending exhaust duct to cause substantial heat transfer between the hot exhaust gases and the relatively cool inlet air. The vertical mounting of the turbine engine provides a substantial reduction in the space required for support of the engine.

3,576,102

TURBOCHARGER SYSTEM

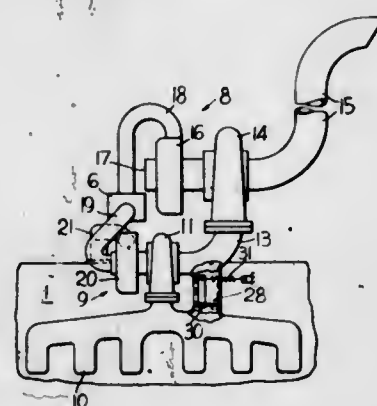
Floyd G. West, Park Forest South, Ill., assignor to Allis-Chalmers Manufacturing Company, Milwaukee, Wis.

Filed May 8, 1969, Ser. No. 823,040

Int. Cl. F02b 37/00

U.S. Cl. 60—13

7 Claims



A turbocharger system having two stage turbocharging with an exhaust gas bypass to partially bypass the first stage turbocharger when the engine is operating at high load high speed conditions.

3,576,103

FIRING OF A FUEL OR A MONOFUEL

Peter B. Kahn, Ilford, Essex, England, assignor to The Plessey Company Limited, Ilford, England

Filed Apr. 3, 1969, Ser. No. 814,891

Claims priority, application Great Britain, Apr. 4, 1968, Feb. 27, 1969, 16216/68; 10476/69

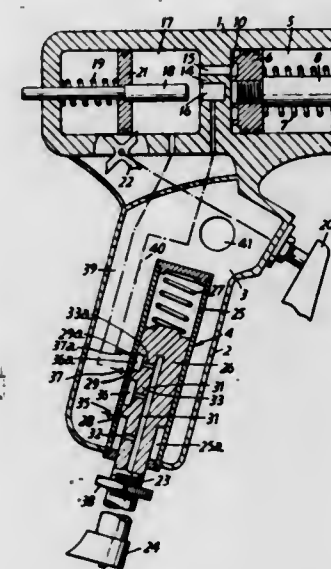
Int. Cl. F01b 29/08

U.S. Cl. 60—26.1

6 Claims

To initiate liquid-fuel combustion or monofuel decomposition, and particularly to operate an impact cylinder by a fuel without requiring a spark or hot point, part of the fuel for each stroke is injected into a firing breech containing a gas and sealingly cooperating with a firing pin which when released by a trigger fires this fuel by compression of the gas in the breech to reach firing pressure and temperature, the

resultant pressure increase being utilized for opening communication from the breech to a main reaction chamber into



which the remainder of the fuel has been injected and also for recocking the firing pin.

3,576,104

CONTROL SYSTEM FOR HYDRAULIC MOTORS

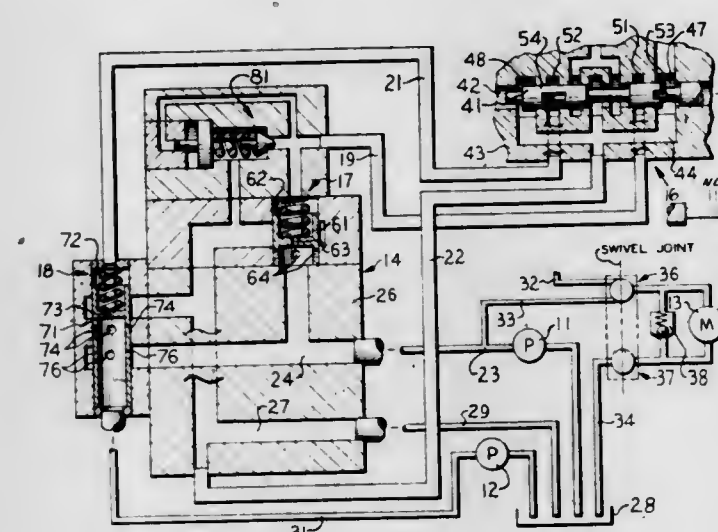
Joseph Kokaly, Phoenix, Ariz., and Lawrence F. Schexnayder, Joliet, Ill., assignors to Caterpillar Tractor Co., Peoria, Ill.

Filed Sept. 29, 1969, Ser. No. 861,627

Int. Cl. F15b 15/18

U.S. Cl. 60—52R

10 Claims



A hydraulic control system for selectively operating a hydraulic motor in at least two operating speeds. The system including first and second pumps and a pilot valve having a fluid passage in communication with the first pump and the motor. First restrictive valve means provide restricted flow from the fluid passage to a first pilot flow passage and selectively communicate the fluid passage with a drain passage. Second restrictive valve means provide restricted flow from the second pump into a second pilot flow passage and selectively communicate the second pump with the fluid passage in the pilot valve and with the drain passage. The restrictive valve means are responsive to a main control valve effective to selectively communicate the first and second pilot flow passages to drain, thus providing for variable speed operation of the motor.

3,576,105 ENGINE GOVERNOR HAVING LAGGED RATE FEEDBACK

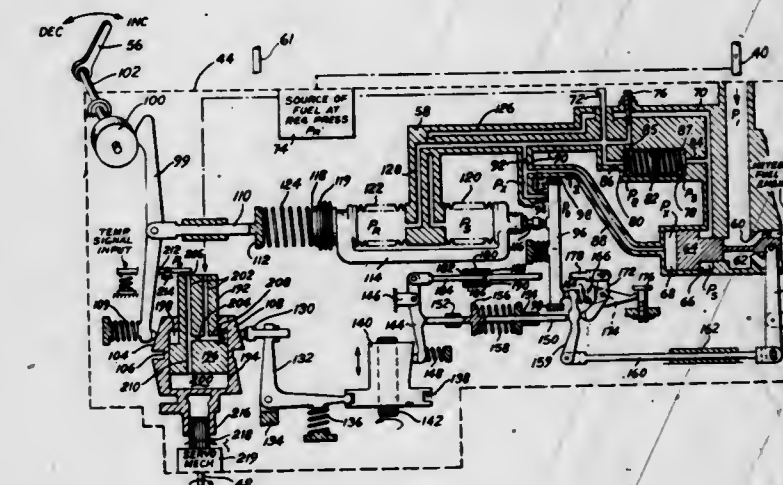
Joseph L. Peczkowski; Mike Snider, and Francis G. Sollman, South Bend, Ind., assignors to The Bendix Corporation

Filed Sept. 22, 1969, Ser. No. 859,785

Int. Cl. F02c 9/08

U.S. Cl. 60—39.28

10 Claims



A combustion engine governor including a fluid servo operated differential area piston having one face vented to a controlled pressurized servo fluid and a second face of relatively smaller area vented to a regulated pressure fluid source via a fluid restriction. A servo valve responsive to a speed error input signal controls the pressure of the servo fluid and is further responsive to a fluid pressure differential generated across the fluid restriction which varies as a function of the rate of displacement of the piston. Variable volume chambers separated by a resiliently loaded fluid pressure responsive movable wall have fluid connections to opposite sides of the fluid restriction and the movable wall responds to pressure actuations thereacross to effect a predetermined lag in the pressure differential generated across the fluid restriction.

3,576,106

POWER TRANSMISSION

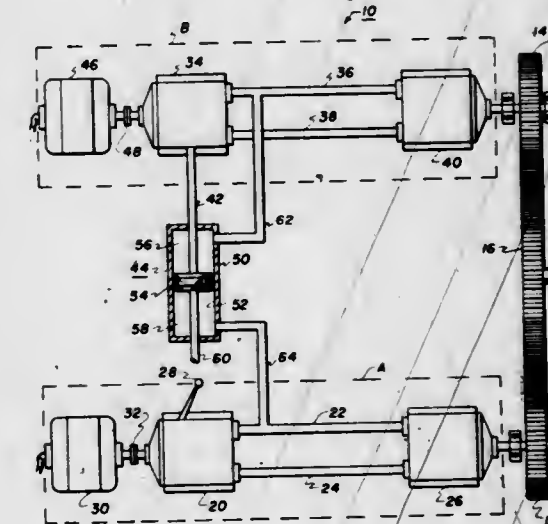
Harry J. Nowicki, Warren, Mich., assignor to Sperry Rand Corporation, Troy, Mich.

Filed Nov. 14, 1968, Ser. No. 775,851

Int. Cl. F15b 15/18, 18/00; F01b 21/00

U.S. Cl. 60—52

6 Claims



A plurality of pressure energy-translating devices each of which is comprised of a variable hydraulic pump driving a hydraulic motor, the outputs of which are connected to a common workload to be driven by the same; and, means for controlling the pressure output of the pumps whereby the driving motors each assume half of the common workload.

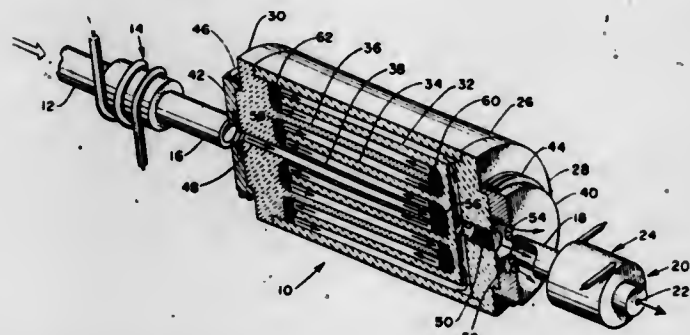
3,576,107

PROPELLANT FEED ISOLATOR

Shigeo Nakanishi, Berea, Ohio, assignor to the United States of America as represented by the Administrator of the National Aeronautic and Space Administration
Filed Mar. 4, 1969, Ser. No. 804,172
Int. Cl. F03h 1/00; F05h 1/16

U.S. Cl. 60-202

8 Claims



An internal labyrinth and shield structure improves the electrical isolation of a propellant feed source from an ion thruster.

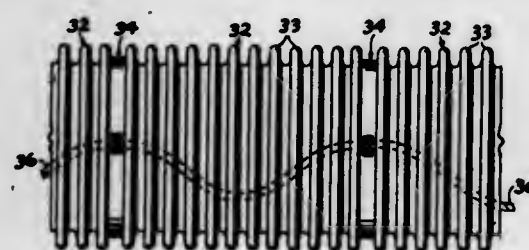
3,576,108

MARINE OIL BOOM

Douglas H. Rowland, P.O. Box 30465, Dallas, Tex. 75230
Continuation-in-part of application Ser. No. 829,006, May 29, 1969. This application Sept. 3, 1969, Ser. No. 854,911
Int. Cl. E02b 15/04

U.S. Cl. 61-1

7 Claims



Elongated sections of flexible buoyant tubes are connected together in end-to-end relation for extending offshore along a coastline surrounding an oil tanker or an oil well location. The wall of the tube sections is formed in accordion-pleated fashion for readily conforming to variations in the surface of the supporting water. Anchor means maintains the assembled tubes in approximate location while other means prevents longitudinal expansion of the tubes beyond the yield point of their material.

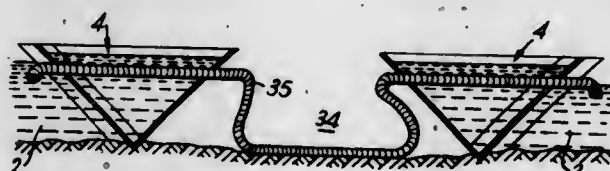
3,576,109

FLEXIBLE WALL MEANS

Leslie Arthur Hopkins, Didsen Purileu, Southampton, England, assignor to Hovercraft Development Limited, London, England
Filed Apr. 15, 1969, Ser. No. 816,337
Claims priority, application Great Britain, Apr. 16, 1968, 17896/68
Int. Cl. E02b 7/20

U.S. Cl. 61-29

5 Claims



A water dam is formed by a succession of flexible wall members in the form of upwardly open watertight bags. By filling the bags with water their adjacent sides are urged into

sealing contact with each other and they are caused to sink into sealing engagement with the bed of the water basin being dammed.

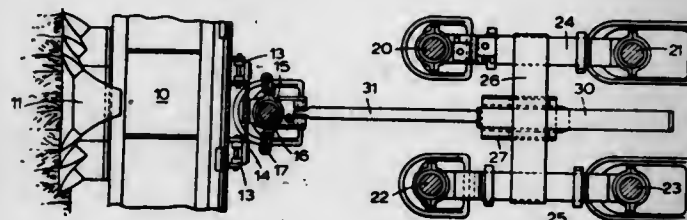
3,576,110

MOVABLE SUPPORT ASSEMBLIES FOR MINERAL MINES

Egon Warns; Gunther Dommann, and Manfred Floter, Altunen, Germany, assignors to Gewerkschaft Eisenhutte Westphalia, Wethmar near Lunen, Westphalia, Germany
Filed May 14, 1969, Ser. No. 824,537
Int. Cl. E21d 15/44

U.S. Cl. 61-45

5 Claims



A movable support assembly resiliently connected to a longwall conveyor in a mineral mining installation. The assembly has an advance roof support member disposed adjacent to and connectable to the conveyor and a number of other roof support members. One or more shifting units serve to displace the advance support member and the conveyor relative to the remaining support members. Resilient guide means serve to guide the advance support member during displacement. A bridging element extending parallel to the conveyor interconnects the support members disposed adjacent either end thereof. The resilient parts of the assembly compensate for any irregularities or deviation from the horizontal in the floor surface of the working.

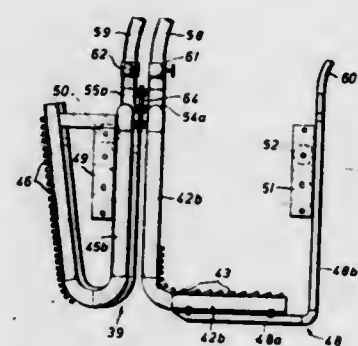
3,576,111

UNDERWATER PIPELINE-BURYING APPARATUS

Urban A. Henry, Jr., P.O. Box 643, Morgan City, La.
Filed July 3, 1968, Ser. No. 742,465
Int. Cl. F16l 1/00; E02l 5/02

U.S. Cl. 61-72.4

20 Claims



The apparatus includes a framework of tubular members adapted to straddle the pipeline to be buried and to be supported thereon for movement along the pipeline. High-pressure jets of water directed ahead of the framework wash away the bottom below the pipeline and form a trench into which the pipeline can fall. High-pressure jets of water directed rearwardly of the framework move the framework along the pipeline. The volume of water flowing to the propulsion jets is controlled, preferably, by a diver riding the framework to control the speed at which the framework is propelled along the pipeline, as dictated by the rate the bottom sediments and silt are removed from beneath the pipeline ahead of the framework.

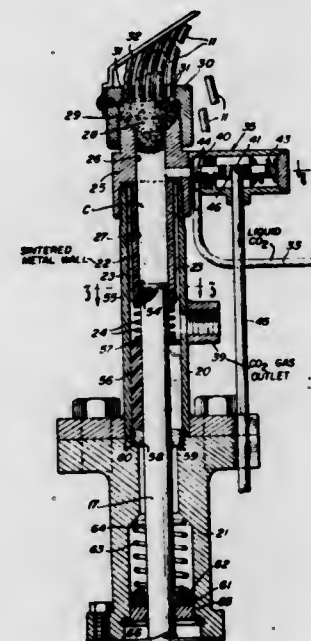
3,576,112

FILTERING GAS FROM PELLETIZED CO₂ SNOW

Ralph S. Frost, Olympia Fields, and Robert C. Hardt, Chicago Heights, Ill., assignors to Chemetron Corporation, Chicago, Ill.
Filed Nov. 29, 1968, Ser. No. 796,255
Int. Cl. F25j 1/00

U.S. Cl. 62-10

13 Claims



Carbon dioxide pellets are produced by flashing liquid carbon dioxide directly into a closed chamber having a reciprocating ram and a perforate head. The carbon dioxide snow and gas formed upon flashing are filtered through tubular sintered metal to deposit carbon dioxide in the chamber and vent the gas therefrom. Carbon dioxide snow is compressed at the head to provide a seal between the atmosphere and the interior of the chamber.

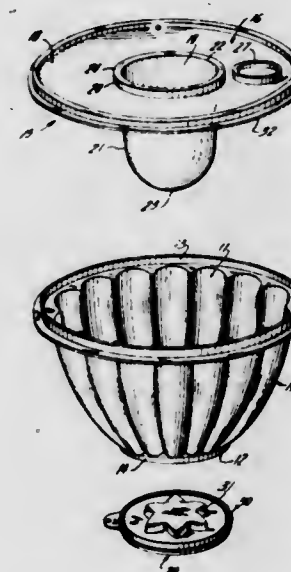
3,576,113

A METHOD FOR FORMING A MULTICOLORED CONGEALABLE PRODUCT

James B. Swett, Barrington, and Harold P. Ashton, Providence, R.I., assignors to Dart Industries, Inc., Los Angeles, Calif.
Filed Aug. 13, 1969, Ser. No. 849,779
Int. Cl. F25c 1/04

U.S. Cl. 62-71

1 Claim



A reusable molding kit and method of molding ingestible substances. The kit comprises a central mold portion and a multiple seal closure having a depressed portion which is inwardly directed. The central mold portion has smaller and larger end openings either of which can be sealed by the mul-

tip seal closure. The depressed portion in the multiple seal closure causes a hollow well to be formed in the molded substance. The hollow well can be filled with various different substances to give a pleasing appearance. The depressed portion also serves as an additional mold for ingestible substances. A multicolored molded substance may be formed by filling the central mold portion with a moldable substance, filling the depressed portion with a second moldable substance having a different color, hardening the substances, removing the substances and inserting the second substance into the hollow well formed in the first substance.

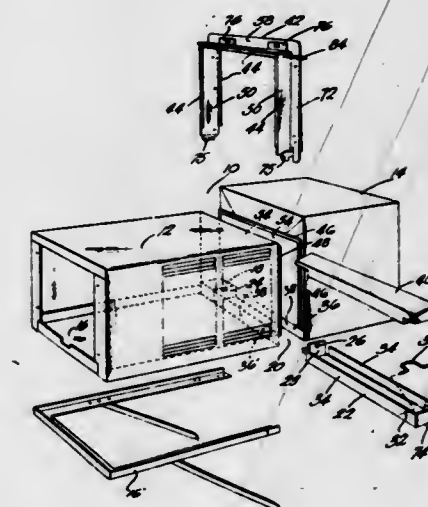
3,576,114

WINDOW AIR CONDITIONING UNIT

Richard F. Sharp, Hillsdale, and John W. Betz, Addison, Mich., assignors to Addison Products Company, Addison, Mich.
Filed June 18, 1969, Ser. No. 834,334
Int. Cl. F25d 23/12

U.S. Cl. 62-262

5 Claims



A window air conditioning unit and installation kit so designed as to be capable of being installed by unskilled persons in casement, double-hung and sliding windows.

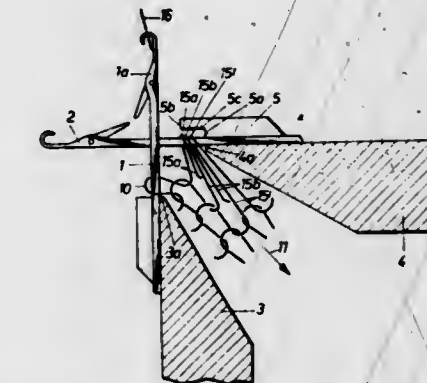
3,576,115

LOOP-RETAINING ARRANGEMENT FOR A CIRCULAR KNITTING MACHINE

Gerhard Schmidt, Stuttgart-Vaihingen, Germany, assignor to Franz Morat GmbH, Stuttgart-Vaihingen, Germany
Filed July 22, 1969, Ser. No. 843,377
Claims priority, application Germany, July 24, 1968, P 17 60 955.1, P 19 21 123.5
Int. Cl. D04b 9/06

U.S. Cl. 66-19

10 Claims



The loops hanging on the cylinder needles and/or dial needles of a circular knitting machine, are retained by holding members so that they cannot be dragged along by needles moving to an advanced knit position and disturb the knitting operations.

3,576,116

NEEDLE-BEDS FOR DOMESTIC KNITTING MACHINES
Simeon Harris Groom, Johannesburg, Republic of South Africa, assignor to Empisal (Proprietary) Limited, Johannesburg, Republic of South Africa

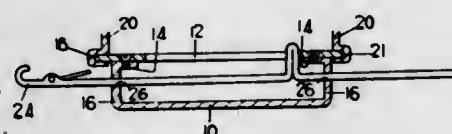
Filed Apr. 1, 1969, Ser. No. 811,998

Claims priority, application Republic of South Africa, Apr. 2, 1968, 68/2095

Int. Cl. D04b 15/00

U.S. Cl. 66-115

4 Claims



The needle bed of a domestic knitting machine has an upper plate that projects at the back and front to form flanges which constitute guides for the camslide.

3,576,117

CAM BAR CONTROL FOR AN AUTOMATIC LAUNDRY MACHINE

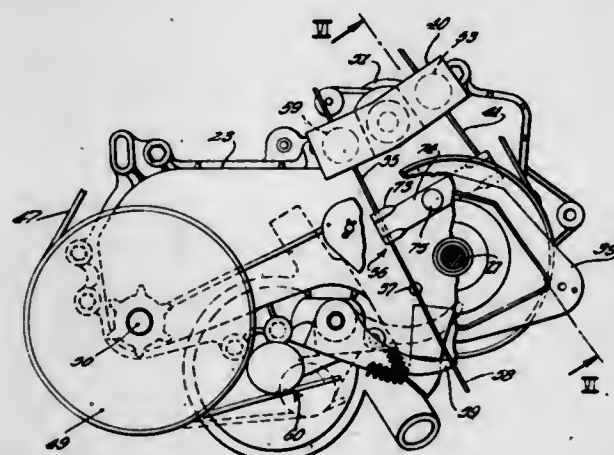
Richard L. Cowan, St. Joseph, and Ronald G. Sommer, Stevensville, Mich., assignors to Whirlpool Corporation, Benton Harbor, Mich.

Filed May 8, 1969, Ser. No. 823,096

Int. Cl. D06f 35/00; F16d 19/00

U.S. Cl. 68-23.7

9 Claims



A cam bar control such as used in a laundry machine having a braking or damping means for deceleration of the movement of the bar. The braking means includes a spring engaging a surface of the cam bar and a raised portion on the surface to increase the frictional force between the spring and cam bar at a particular point in the movement of the bar.

3,576,118

DOOR LOCK

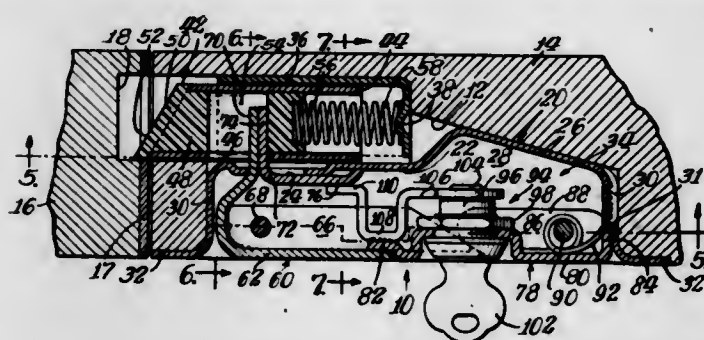
Robert E. Doerrfeld, Lindenhurst, Ill., assignor to A. L. Hansen Mfg. Co., Gurnee, Ill.

Filed Oct. 24, 1969, Ser. No. 869,092

Int. Cl. E05b 5/00; E05c 1/14

U.S. Cl. 70-146

8 Claims



A pan-shaped housing with a lock bolt slidably guided at the back wall thereof. The lock bolt comprises a hollow

metal tube having longitudinal corners with a slight radius, and a plastic insert with an outer head portion presenting an inclined cam surface for cooperation with a keeper plate. Latching and locking members are pivotally mounted in the housing, and have plate portions which extend across and normally close the front of the housing. The latching member has a lever portion which extends through the housing back wall and projects into the plastic insert of the lock bolt for effecting retracting movement of the bolt upon pivoting of the latching member. The locking member has selectively operable lock means for preventing pivoting of the latching member and corresponding retracting movement of the bolt.

3,576,119

ELECTRO-MECHANICAL DOOR LOCK SYSTEM

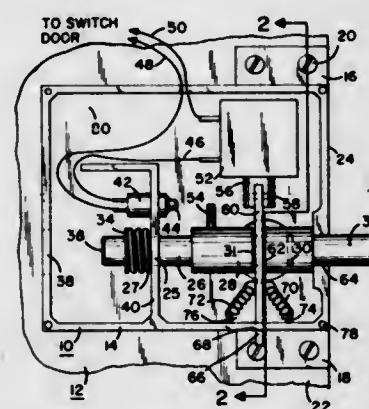
Archie H. Harris, 2761 Dusk Drive, San Diego, Calif.

Filed Nov. 25, 1968, Ser. No. 778,633

Int. Cl. E05b 43/00; E05b 47/06

U.S. Cl. 70-271

6 Claims



An electromechanical door lock system that has a housing with a lock bolt that is resiliently biased to a retracted position with a solenoid operated latch that holds the lock bolt in the extended, locked position, and the housing has openings for mechanically locking and unlocking the bolt, and a timing circuit for selectively energizing the solenoid to release the lock bolt, which timing circuit has override switches for controlling the position of the lock bolt independently of the timing circuit.

3,576,120

APPARATUS AND METHOD FOR WINDING COIL SPRINGS

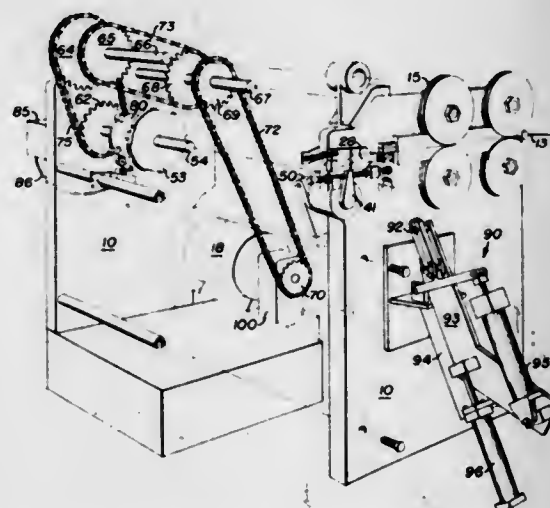
Arnold Peter LeVasseur, Lakeville, Minn., assignor to North American Rockwell Corporation, Pittsburgh, Pa.

Filed Oct. 10, 1968, Ser. No. 766,560

Int. Cl. B21c 51/00; B21f 3/00; B21f 11/00

U.S. Cl. 72-33

23 Claims



A method and apparatus for winding coil springs in which the spring wire is supplied to a bending location at a substantially constant feed rate and is sequentially bent for predetermined periods of time at a first fixed radius of curvature, a

3,576,123

FORGING APPARATUS

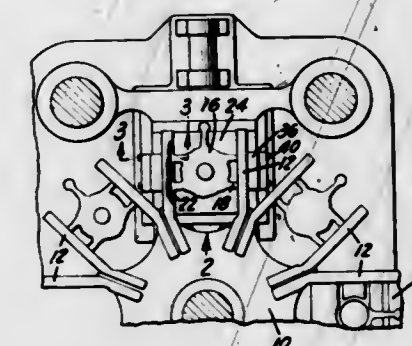
Ralph E. Davis, Wyomissing, Pa., assignor to North American Rockwell Corporation, Pittsburgh, Pa.

Filed Mar. 18, 1969, Ser. No. 808,102

Int. Cl. B21d 43/00; B23p 23/00; B65g 29/00

U.S. Cl. 72-419

2 Claims



Machines have been developed which have a forging station to which cast pieces are conveyed and supported during the forging operation by a movable support means having projecting arms with the cast pieces carried therebetween and supported thereby through the medium of runners cast integrally with the workpiece, the runners including portions received within recesses in the arms. The disclosure concerns means for preventing the bending and distortion of the arms by the extrusion of the metal of the runners during the forging operation.

3,576,121

MEANS FOR ROLL FORMING ANNULAR PARTS

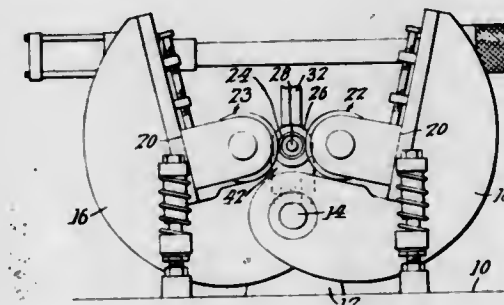
Howard A. Greis, Holden, Mass., assignor to Kinefac Corporation, Worcester, Mass.

Filed Sept. 20, 1968, Ser. No. 761,073

Int. Cl. B21h 11/12; B21h 11/00

U.S. Cl. 72-91

3 Claims



Rolling apparatus comprising a female die to receive an annular blank, and a male rolling die impinging on the blank interiorly thereof, with movable backup, driving and rotating members for each die.

3,576,122

CRIMPING TOOL

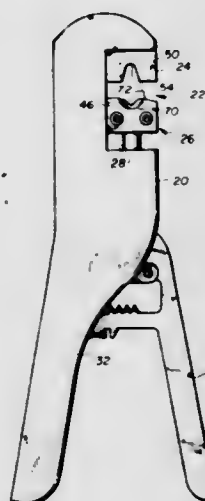
John J. Churla, Jr., Raritan, N.J., assignor to Thomas & Betts Corporation, Elizabeth, N.J.

Filed Mar. 26, 1969, Ser. No. 810,699

Int. Cl. B21d 9/08

U.S. Cl. 72-413

25 Claims



3,576,124

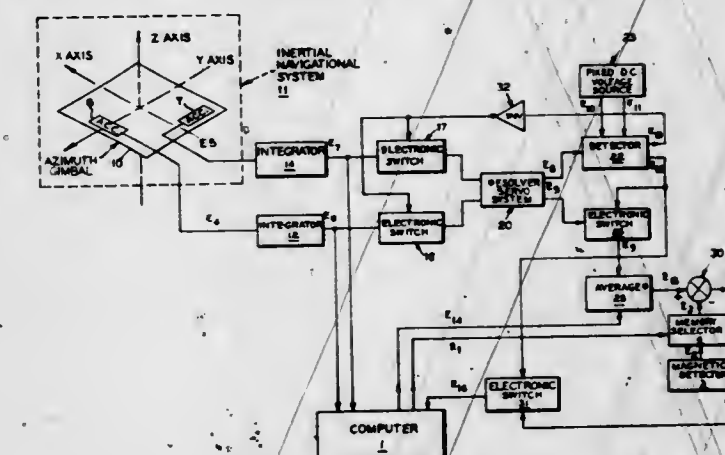
SYSTEM AND METHOD FOR ALIGNING AN INERTIAL NAVIGATION SYSTEM

Thomas E. O'Connor, Hawthorne, N.J., assignor to The Bendix Corporation

Filed Mar. 19, 1969, Ser. No. 808,407

Int. Cl. G01c 25/00

10 Claims



A system and a method of aligning an inertial navigation system providing signals corresponding to azimuth movement of a vehicle moving in a known azimuth. The azimuth movement signals are compared with a signal corresponding to the known azimuth to provide a difference signal for correcting the azimuth movement signals accordingly.

3,576,125

TEST APPARATUS TO TEST LIGHT AND HEAT EFFECTS ON SAMPLE SURFACES

Dieter Kockott, Ruckingen, and Burkhard Von Diemar, Butzbach, Germany, assignors to Original Hanau Quarzlampe G.m.b.H., Hanau, Germany

Filed Mar. 19, 1969, Ser. No. 808,402

Claims priority, application Austria, Apr. 8, 1968, 4/A3388/68

Int. Cl. G01n 17/00

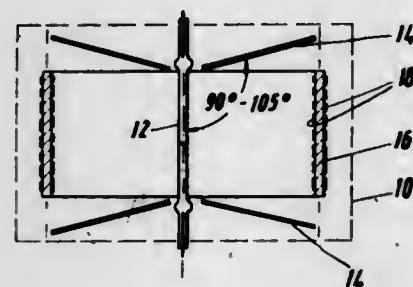
U.S. Cl. 73-15

7 Claims

To provide for uniform radiation (heat or light) on a test sample of paints or the like, an elongated radiation source is

The disclosure is directed to a die set in which at least one of the die members of the set includes a nest block composed of a semirigid, flexible material. Such die member comprises a support block for receipt of said nest block together with end blocks for restraining the nest block therebetween. The cooperating die member of the die set has a nest which permits entry of the nest block such that the shape of the nest of the nest block may be controlled jointly by the interaction between the nest block and the nest of the cooperating die member and the effects of an object placed therebetween. In other configurations of the die set both die members may include a nest block of semirigid, flexible material. In either of the embodiments the nest may be of uniform nest configuration such as a V-notch or an arcuate portion, or a composite configuration having an arcuate portion and straight sides. Raised portions may be introduced along the length of the nest in order to place greater force upon particular portions of the object placed in the die set.

located centrally of a cylindrical carrier. The test samples are located on the carrier and the ends of the cylindrical carrier are, in one embodiment, closed off by means of reflectors, so that the radiation at the ends is substantially uniform and the same as that reaching samples located in the center. In another embodiment, the radiation source is made more in-



tense at the ends, for example by looping the source upon itself at the ends, or introducing additional radiation. In another embodiment, collimating discs are located in diametrical planes on the cylinder, so that the radiation transmitted from the central, axial source impinges substantially uniformly at the samples, so that the radiation intensity is compensated for end loss.

3,576,126

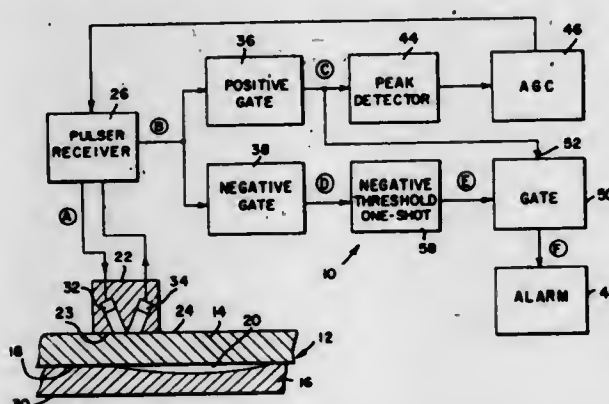
ULTRASONIC BOND TESTER

Frederick G. Weighart, Sunset Cove, Brookfield, Conn., assignor to Automation Industries, Inc., Century City, Calif. Continuation of application Ser. No. 523,816, Dec. 13, 1965, now abandoned. This application June 2, 1969, Ser. No. 829,696

Int. Cl. G01n 9/24

U.S. Cl. 73-67.7

13 Claims



An ultrasonic bond tester wherein a transmitting ultrasonic transducer is pulsed to launch an ultrasonic wavetrain into a bonded workpiece. The wavetrain reflected by a void is shifted in phase 180° from the wavetrain reflected by a good bond. The phase shift is detected by passing the signal from a receiving transducer to positive and negative gates, passing only positive and negative portions of the received signal respectively. The negative signal sets a one-shot multivibrator, which in turn closes a gate. Positive signals pass through the gate only if they have been shifted in phase due to reflection from a void. An alarm is operated by signals passed by the gate.

3,576,127

RESILIENCE TESTING DEVICE

Daniel H. Weitzel, and Jerry C. Jellison, Boulder, Colo. Filed Oct. 20, 1969, Ser. No. 867,843

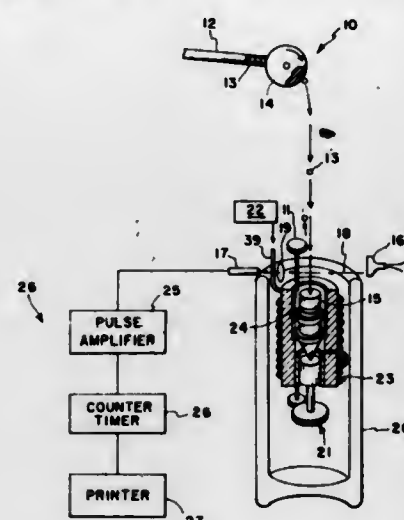
Int. Cl. G01n 3/52

U.S. Cl. 73-79

7 Claims

This invention is an automated ball rebound resilience testing system. It is used to measure the resilient behavior of materials at varying temperatures. The apparatus consists of a light source with the beam focused on a photocell. When the light beam is interrupted as objects are dropped through

it and rebounded, signals are emitted from the photocell and pass through a pulse amplifier, a counter timer and lastly are



recorded on a printer, thus providing data for determining the resilience of the sample.

3,576,128

HALF BRIDGE MOMENT DESENSITIZATION OF PARALLELOGRAM-TYPE BEAMS

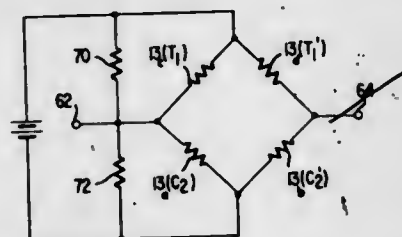
Harry E. Lockery, Sudbury, Mass., assignor to BLH Electronics, Inc., Waltham, Mass.

Filed Mar. 13, 1969, Ser. No. 806,824

Int. Cl. G01l 1/22

U.S. Cl. 73-141

9 Claims



A rigid-ended multiple bending parallelogram-type beam which includes a plurality of electrical strain gauge elements mounted thereon is moment desensitized by the application of a pair of shunting resistors across a half of a bridge circuit arrangement formed by the strain gauge elements whereby accurate force measurements independent of load position may be realized.

3,576,129

CLINICAL DISPOSABLE THERMOMETER

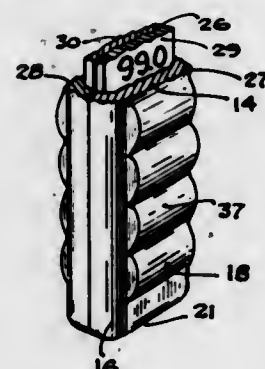
Nelson A. Crites, Columbus, Ohio, assignor to Abbott Laboratories, Chicago, Ill.

Filed Aug. 19, 1969, Ser. No. 854,354

Int. Cl. G01k 11/06

U.S. Cl. 73-358

5 Claims



A disposable thermometer has an indicia of temperature spaced apart from a magnifying lens lying within the focal

length of the lens. A temperature-responsive opaque material is positioned on the inner lens surface, that is, the one facing the indicia of temperature. When in the solid phase, the temperature-responsive material acts as a shutter to obscure a legible view of the indicia through the magnifying lens. When the temperature rises to a predetermined level, the temperature-responsive material melts, becomes transparent, and spreads as a thin film or layer on the inner lens surface thus rendering visible a magnified or enlarged virtual image of the indicia of temperature.

3,576,130

TEMPERATURE INDICATOR

Kenneth R. Curwen, Southampton, England, assignor to Kollsman Instrument Corporation, Syosset, N.Y.

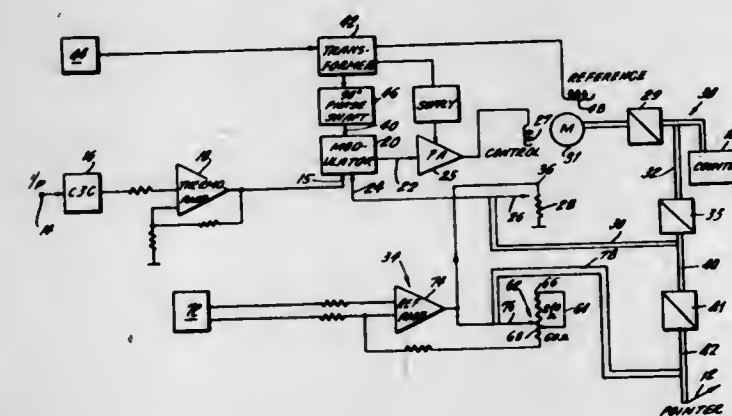
Filed Apr. 25, 1969, Ser. No. 819,245

Claims priority, application Great Britain, Mar. 31, 1969, 16629/69

Int. Cl. G01k 7/14

U.S. Cl. 73-359

4 Claims



Temperature indicators for producing linearized indications from temperature-responsive sensing means that develop an input signal bearing a predetermined nonlinear relationship to the instantaneous temperature of the device being monitored. In one embodiment, the input signal is utilized as one input to a comparator which develops an error signal representative of the difference between the input signal and a compensated feedback signal representative of the instantaneous position of an indicator such as a dial or pointer. The error signal is used to drive a servomotor which continuously repositions the indicator in accordance with the magnitude and phase of the error signal to maintain a correct indication of the temperature being sensed by the thermally responsive sensing means. In the other embodiment, the input signal is substantially linearized by a servo-controlled nonlinear amplifier and then fed to a comparator which also receives a linear feedback signal from the servo. In both embodiments, the indicator is compensated by providing a shorted linear potentiometer network arranged to introduce a nonlinear compensation function matched to the non-linearity of the temperature-responsive sensing means over the normal operating temperature of the device being monitored.

3,576,131

PNEUMATIC SNAP ACTING MECHANISM

Franklin J. Calderazzo, Branford, Conn., assignor to Northeast Fluidics, Inc., Bethany, Conn.

Filed Feb. 19, 1969, Ser. No. 800,633

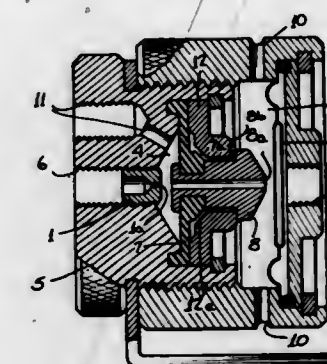
Int. Cl. F15c 1/20; G01b 13/12

U.S. Cl. 73-37.5

8 Claims

The disclosure includes an object proximity sensing device of the type ejecting a fluid jet towards the object. This jet is ejected through a chamber having a wall in which an opening is positioned so that the jet passes through this opening going towards the object and the wall is reciprocative in the direction of the jet. The jet passing through the opening acts as an aspirator so that normally the chamber is at subatmospheric pressure and the wall is pulled backwardly, but when the jet leaving the opening senses the proximity of the

object the pressure in the chamber begins to rise, the wall begins to move forwardly with a consequent increase in the back pressure on the jet, and this action continues with great rapidity so that the wall snaps forwardly. The reverse occurs



when the object moves away. In this fashion the pressure in the chamber changes rapidly from subatmospheric to superatmospheric pressure, thus providing a positive on or off, or digital, signal.

3,576,132

GAS DIVERTING MECHANISM

Stefan Kotoc, Prague, Czechoslovakia, assignor to Ustav pro vyzkum motorovych vozidel, Prague, Czechoslovakia

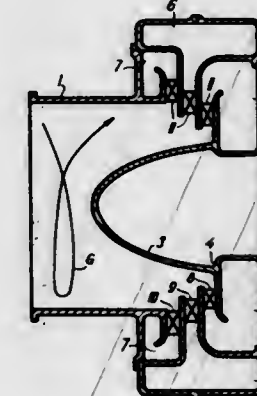
Filed Nov. 10, 1969, Ser. No. 875,149

Claims priority, application Czechoslovakia, Nov. 14, 1968, PU7754-68

Int. Cl. G01n 1/22

U.S. Cl. 73-421.5

9 Claims



Diverting apparatus for gases helically flowing in pipelines comprising at least one annular chamber located exteriorly of the pipeline having a conduit extending into the pipeline. The conduit having an annular inlet concentric with the axis of the pipeline.

3,576,133

MEANS FOR DYNAMICALLY BALANCING A GYROSCOPE

Walter J. Krupick, Succasuna, and Richard F. Cimera, Fairfield, N.J., assignors to Singer-General Precision, Inc., Little Falls, N.J.

Filed Aug. 12, 1968, Ser. No. 751,963

Int. Cl. G01c 19/04; G01m 1/32

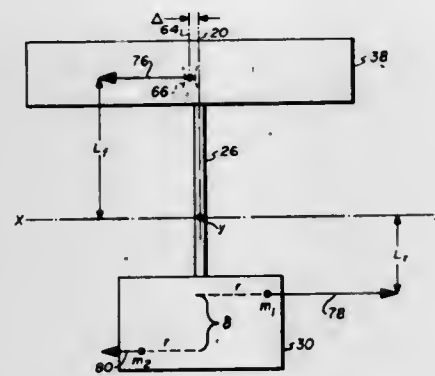
U.S. Cl. 74-5

6 Claims

In free-rotor flexure suspended gyroscopes it is common to mount the inertia wheel-gimbal at one end of the drive shaft and to mount the motor drive assembly at the other end of the shaft. This arrangement usually produces an offset between the mass center of the inertia wheel-gimbal assembly and the rotation axis of the shaft. The offset, in turn, creates a dynamic torque unbalance which causes a "wobbling" or vibration about the gyroscope mounting plane. In order to cancel this dynamic unbalance torque, a pair of dissimilar masses are positioned within the gyro's motor hub assembly. The masses, which are diametrically opposed

within the plane of unbalance, are also axially displaced relative to one another. The resulting arrangement balances the

different pitch. By providing the first and second sets of threads with a pitch difference not equal to the difference in



forces and torques acting on the rotating portion of the gyroscope thereby cancelling the vibrations in the mounting plane.

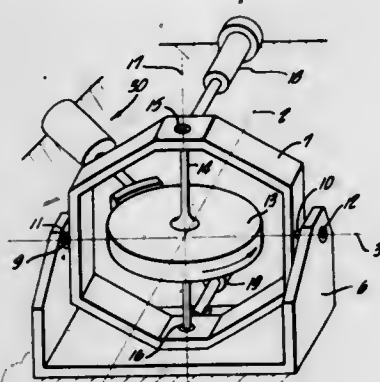
3,576,134

GYROSCOPIC STABILIZER HAVING AN ADJUSTABLE SPRING

Samuel N. Fersht, Pasadena, Calif., assignor to Tetra Tech, Inc., Pasadena, Calif.; Santa Fe International Corporation, Los Angeles, Calif. and States Marine Lines, Inc., New York, N.Y., a fractional part interest to each
Filed Feb. 19, 1968, Ser. No. 706,426
Int. Cl. G01c 19/30

U.S. Cl. 74-5.22

22 Claims



A restoring torque is applied to the gimbal of a gyroscope stabilizer by a spring having an adjustable restoring characteristic. In one embodiment, the restoring characteristic of the spring is nonlinear, increasing with the angular displacement of the gimbal from a reference position. The spring-restoring characteristic can be automatically adjusted responsive to changes in the frequency of the applied torque. To compensate for the adverse effects of rotational displacement of the supporting structure about the gimbal axis on the stabilization action, two identical stabilizers are employed that have rotors spinning in opposite directions and gimbals supported to rotate about parallel axes.

3,576,135

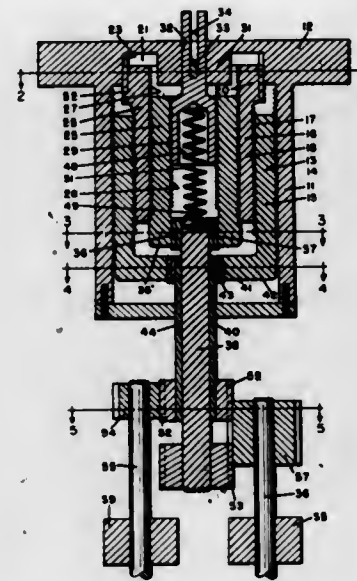
ELECTROMECHANICAL CONTROL ACTUATOR SYSTEM

Hubert F. A. Tschunko, Milton, Mass., assignor to the United States of America as represented by the Administrator of the National Aeronautics and Space Administration
Filed Nov. 7, 1969, Ser. No. 874,733
Int. Cl. F16h 27/02, F16h 1/05

U.S. Cl. 74-89.15

14 Claims

A motion-transmitting device utilizing a double differential screw principle is disclosed. One differential screw mechanism including first and second sets of threads of different pitch is operatively coupled to another differential screw mechanism having third and fourth sets of threads of



pitch between the third and fourth sets of threads, a double differential movement is established.

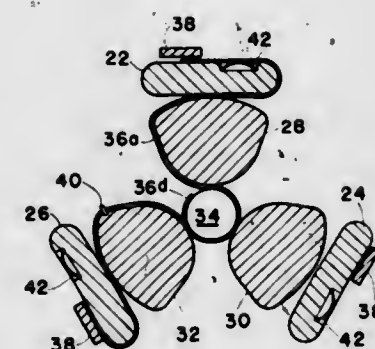
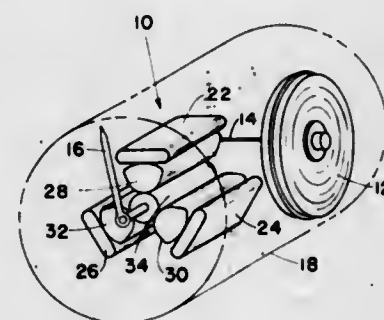
3,576,136

FLEX BAND DEVICES

William P. Myers, Rock Island, Ill., assignor to The Bendix Corporation
Filed Oct. 14, 1969, Ser. No. 866,235
Int. Cl. F16h 27/02, F16h 21/44; F16c 27/00

U.S. Cl. 74-89.2

22 Claims



A mechanical movement which comprises a center shaft, a supporting frame, and mechanism for causing said center shaft or said supporting frame to rotate about a fixed axis wherein said mechanism includes a plurality of conjointly movable rockers interposed between the shaft and frame and thin flexible band means operatively connected to said frame, rockers, and shaft for transmitting motion therebetween.

3,576,137

TIME-ACCUMULATING MEANS FOR COIN-OPERATED TIMER MECHANISM

Clarence A. Zinniger, Louisville, Ky., assignor to General Electric Company
Filed May 1, 1969, Ser. No. 820,771
Int. Cl. F16h 27/02

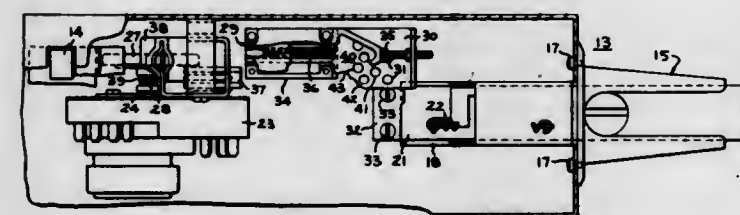
U.S. Cl. 74-130

4 Claims

A time-accumulating means is provided to rotate the setting shaft of a timer mechanism unidirectionally in

response to an inward and outward reciprocation of the slide of a coin-receiving mechanism. The time-accumulating means comprises a gear rack secured to the slide for reciprocation therewith, a gear rotatably positioned to engage the gear rack during at least a portion of the outward reciproca-

of which causes it to tend to assume a circular configuration, whereby the belt inherently and automatically disengages the drive pulleys when the belt is slackened and the drive pulleys are connected in direct drive. This precludes rubbing of the belt in direct drive.



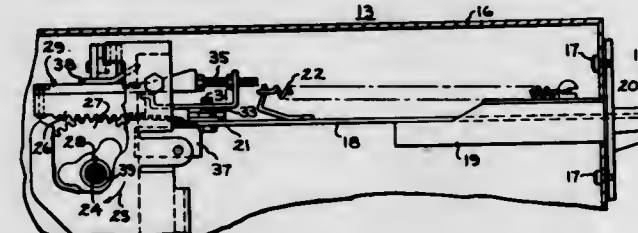
3,576,139

A STEERING WHEEL HAVING A RIM WITH A LINING SECURED THEREON

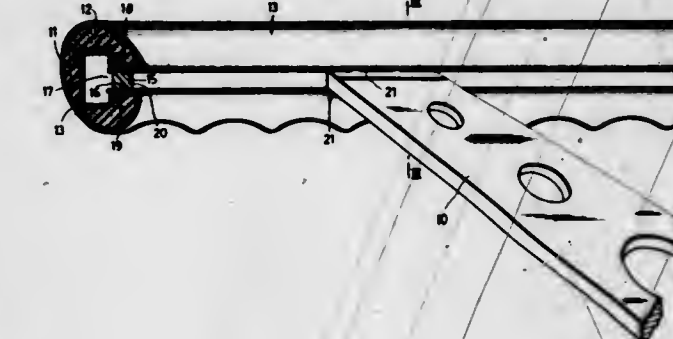
Giovanni Conterno, Veduggio Olona Varese, Italy, assignor to Personal S.a.s., Milan, Italy
Filed Mar. 11, 1969, Ser. No. 806,107
Claims priority, application Italy, Mar. 16, 1968 14090A/68
Int. Cl. G05g 1/10

U.S. Cl. 74-552

3 Claims



tion, and a unidirectional clutch connecting the gear and the setting shaft. By this arrangement, the inward reciprocation of the slide and gear racks will cause idle rotation of the gear, while outward reciprocation of the slide and gear rack will cause rotation of the setting shaft and the consequential accumulation of timer run time.



A lined steering wheel rim is disclosed, which comprises a core having a U-shaped cross section and a resilient cushioning member surrounding the core partially. A liner surrounds the cushioning member and has free edges slipped into the interior of the U-shaped chamber of the core. Blocks lock the edges of the liner in position by snugly engaging the inner confronting faces of the U-shaped inner space of the core.

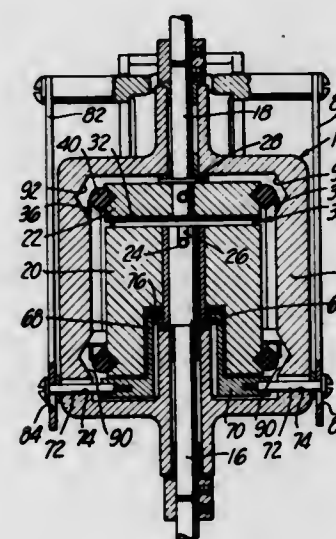
3,576,138

REVERSIBLE DRIVE

Cornelius Wildhagen, 5112 1/2 Tujunga Ave., North Hollywood, Calif. 91601
Filed May 1, 1969, Ser. No. 820,746
Int. Cl. F16h 7/02, F16h 7/12

U.S. Cl. 74-220

7 Claims



A reversible drive of the belt-and-pulley type, comprising coaxial, axially spaced drive pulleys and coaxial, axially spaced idler pulleys offset to one side of the drive pulleys and rotatable about an axis perpendicular to and spaced laterally from the axis of the drive pulleys. An endless belt is trained around one of the drive pulleys, one of the idler pulleys, the other of the drive pulleys and the other of the idler pulleys, in that order. A movable mount for the idler pulleys slackens and tightens the belt, while a clutch respectively connects and disconnects the drive pulleys. With the belt slackened and the drive pulleys connected, a direct drive between the drive pulleys is obtained. With the belt tightened and the drive pulleys disconnected, a reverse drive between the drive pulleys is achieved. The belt is an O-ring the built-in memory

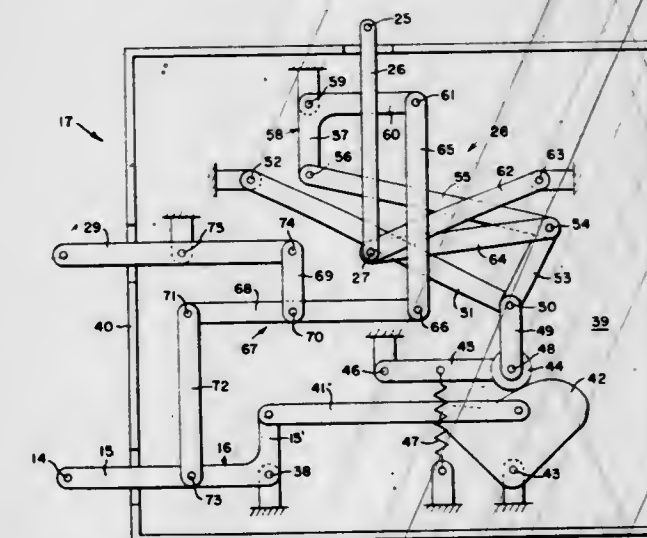
3,576,140

VARIABLE THROTTLE CONTROLS

Raymond L. Garman, Hastings-on-the-Hudson, and Herbert Zieholz, New York, N.Y., assignors to The Singer Company, New York, N.Y.
Filed June 11, 1969, Ser. No. 832,367
Int. Cl. G05g 1/04, G05g 1/00

U.S. Cl. 74-516

3 Claims



A control adapted to be used in a motor vehicle for controlling the throttle valve from a pedal and having the capability of enabling the sensitivity of the throttle to be variably adjusted by the driver while driving. The control superimposes a variable amplitude sine wave function upon the conventional sensitivity relationship by modifying the movement of the pedal through a cam whose output is multiplied in a multiplying mechanism by a driver-selected factor and which

result is added in a summarizer to the pedal movement to be transmitted to the throttle.

3,576,141

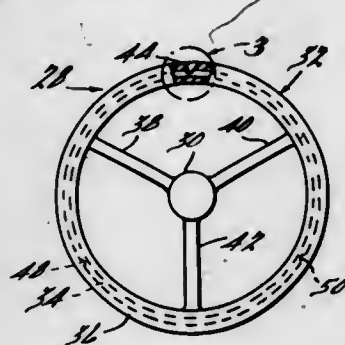
MOTOR VEHICLE STEERING WHEEL ASSEMBLY
Harold G. Brilmyer, Grosse Pointe, Mich., assignor to Ford Motor Company, Dearborn, Mich.

Filed Dec. 15, 1969, Ser. No. 885,161

Int. Cl. B62d 1/04

U.S. Cl. 74-552

7 Claims



A motor vehicle steering wheel assembly in which the steering wheel is formed from a steel ring covered with molded plastic material. The wheel is connected to the vehicle steering column by a plurality of spokes secured to the wheel at points about the wheel circumference. Midway between these points of connection between the wheel and the spokes, the steel ring is notched such that it will fracture upon a predetermined load being applied thereto.

3,576,142

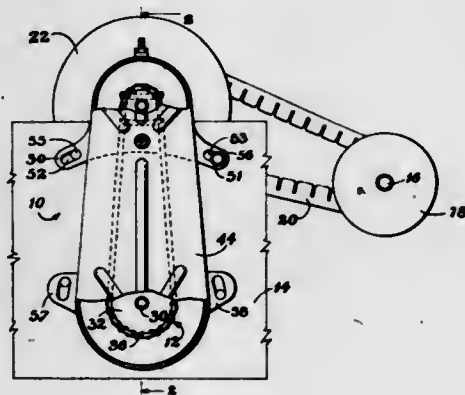
HOUSING FOR MOTION TRANSMISSION MECHANISM
John Matthews, Scranton, Pa. (16 Hall Ave. Clarks Green, Penna.)

Filed May 15, 1969, Ser. No. 824,932

Int. Cl. F16h 57/02

U.S. Cl. 74-606

2 Claims



A housing for enclosing a motion transmission mechanism includes spaced bearing means for supporting parallel shafts and means for moving one of the bearings in a direction radially of the other in order to adjust the motion-transmitting means. Unique lubrication means are provided for the bearing which is uppermost in normal operation.

3,576,143

CONSTANT SPEED DRIVE AND GENERATOR
Stephen S. Baits, Rockford, Ill., assignor to Sundstrand Corporation

Filed Sept. 5, 1969, Ser. No. 855,495

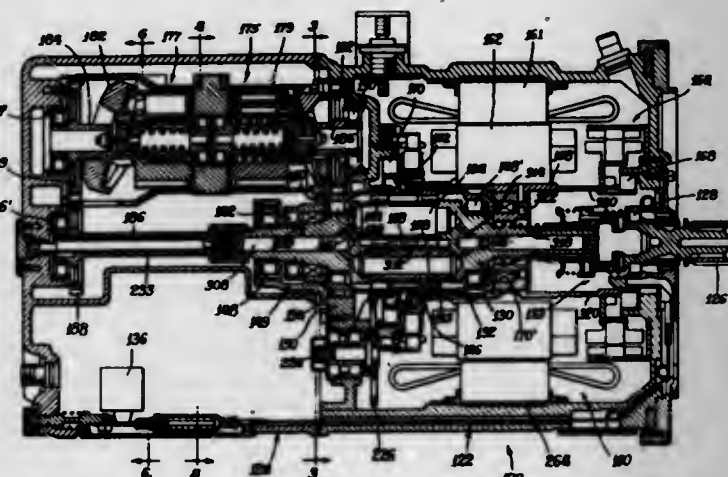
Int. Cl. F16h 47/04

U.S. Cl. 74-687

20 Claims

An integrated constant speed drive and generator for providing electrical power to aircraft including a constant speed drive housing open at one end and having drive com-

ponents therein including a differential and an hydraulic drive, and a generator housing also open at one end and having a generator mounted therein with the housings interconnected so that they open to one another and define a common sump for generator cooling fluid as well as drive control



3,576,144

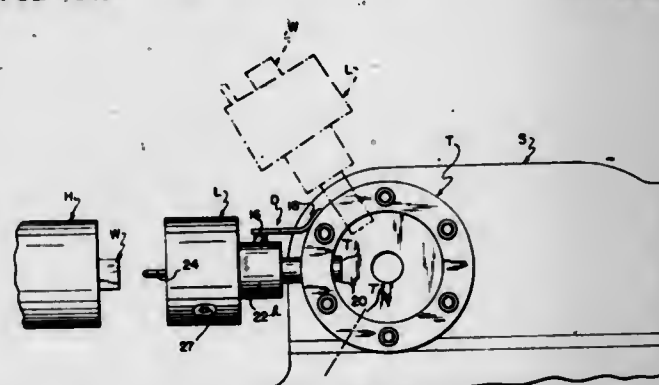
PART LOADER FOR TURRET LATHES OR THE LIKE
Frank L. Strah, 770 Kenbridge Drive, Richmond Heights, Ohio 44124

Filed June 20, 1969, Ser. No. 835,192

Int. Cl. B23b 13/02

U.S. Cl. 82-2.5

15 Claims



Loading tooling, for workpieces with noncircular portions gripped in a continuously rotating chuck of a turret lathe or like machine, comprises on the chuck a gripping socket and an element having a pin-receiving hole parallel to the axis of rotation with a lead-in groove; and on the turret, shiftable between a hand loadable and a transfer position, a transfer device including a snubbed body rotatable on a turret-received shank having a frictional workpiece gripping recess, and a pin so located on the body relative to the recess that upon axial turret-shifting of the device in transfer position relative to the chuck, that pin pickup in the hole rotatingly picks up the body with the workpiece aligned for reception and gripping in the chuck.

3,576,145

TOOL HOLDER
Lewis Bernath, Chelsea, Mich., assignor to Federal Screw Works, Detroit, Mich.

Filed Apr. 1, 1969, Ser. No. 811,906

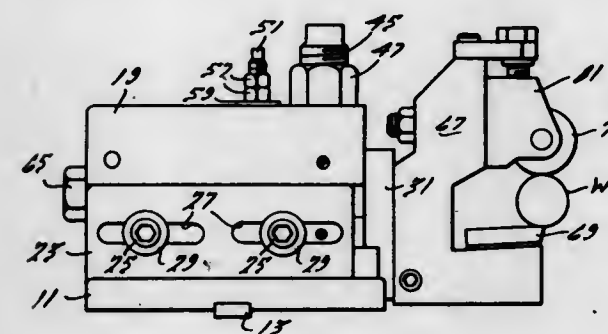
Int. Cl. B23b 29/16

U.S. Cl. 82-35

8 Claims

A shaving tool holder for use on automatic screw machines or the like. The tool holder is self-adjusting and carries a

roller for engaging the work at a location opposite the tool. The roller and tool are supported on a head positioned at one member connected to it. The handle also is employable to swing the arm upwardly to separate the members. A material



end of a pivoted arm. The arm is spring biased to permit the tool and roller to align with the work.

3,576,146

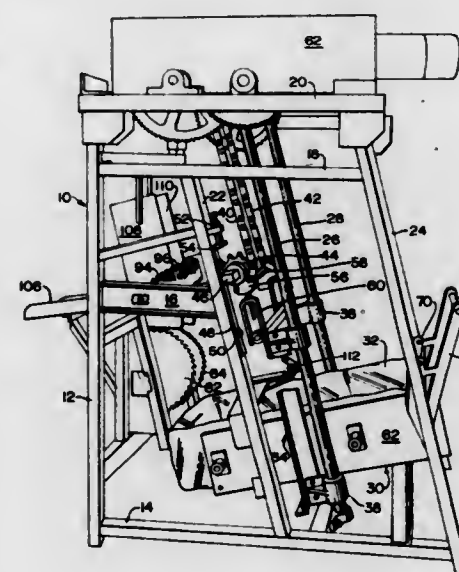
MACHINE FOR CUTTING ICE BLOCKS
Robert E. Adams, Hudson, N.Y., assignor to Gifford-Wood, Inc., Hudson, N.Y.

Filed Jan. 28, 1969, Ser. No. 794,64

Int. Cl. B26d 7/06; B28d 1/04, 1/08

U.S. Cl. 83-408

8 Claims



Apparatus is provided for cutting a large cake of ice into smaller blocks on an automatic basis. Hoisting mechanism raises and lowers a gig which carries the large cake of ice upwardly and downwardly into the path of cooperating cutting elements. A pair of spaced rotary disc saws cuts slots in one face of the cake and a chain saw cuts perpendicularly through another face of the cake, severing the small blocks from the main cake. Guide elements are employed to maintain the cake in position during the cutting operations.

3,576,147

BELT CUTTER
Charles E. Kerr, Jr., Hillsboro, Oreg., assignor to Eltec, Inc., Lake Oswego, Oreg.

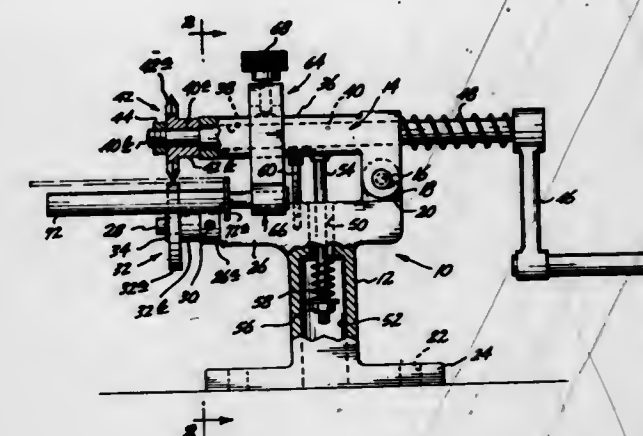
Filed Mar. 12, 1969, Ser. No. 806,541

Int. Cl. B26d 1/22

U.S. Cl. 83-187

5 Claims

Belt-cutting apparatus including a pair of disc members used in cutting positioned one above the other and journaled on a stand. The stand includes an arm mounting the upper member pivotally mounted on a pedestal that forms a lower part of the stand. The arm is spring biased downwardly to force the two members together for cutting purposes. A shaft extends along the arm, and the upper member is connected to one end of this shaft. A handle is joined to an exposed opposite end of the shaft and is used to turn the shaft and the



guide for positioning the inner edge of a belt being cut is adjustably mounted on the pivoted arm.

3,576,148

STRIP-MAP-PREPARATION DEVICE INCLUDING A CUTTER AND WORK-HOLDER COMBINATION
Manuel Katz, Monsey, N.Y., assignor to The Bendix Corporation

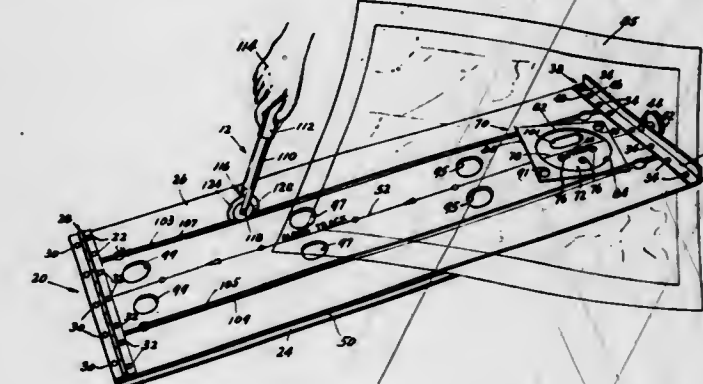
Division of Ser. No. 660,249, Aug. 24, 1967, Pat. No. 3,526,038

Filed June 24, 1969, Ser. No. 836,057

Int. Cl. B26d 7/02

U.S. Cl. 83-455

5 Claims



A device for forming a strip map including a base element and a clear plastic clamping element pivotally mounted on the base element, and between which elements there may be clamped a map-bearing sheet of paper. The clamping element has inscribed thereon a center guide line along which a predetermined flight track drawn on a map may be aligned as viewed through the clamping element.

Further a clear plastic angularly adjustable protractor element is carried by the clamping element and through which a predetermined position for the start of the flight of the aircraft may be seen on the map.

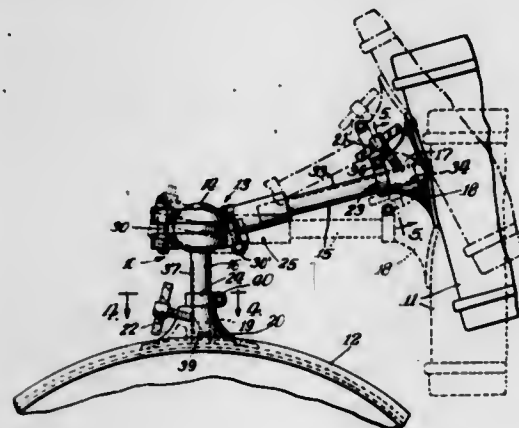
The plastic clamping element further includes a pair of longitudinal slots extending parallel to the flight track line and through which there may be inserted by the operator a circular knife blade to be positioned in a pair of parallel extending guide slots formed in the base element in coinciding relation with the pair of parallel slots in the clamping element so as to permit the map-bearing sheet of paper clamped between the base element and the clear plastic clamping element to be severed by the circular knife blade rotated along parallel cutting lines so as to form the map into a strip map of a predetermined width. The cutting edge of the circular knife makes contact with the paper only.

3,576,149 DRUM HOLDER

Henry H. Slingerland, Jr., Wilmette, Ill., assignor to Slingerland Drum Co., Niles, Ill.
Filed Apr. 3, 1969, Ser. No. 813,188
Int. Cl. G10d 13/02

U.S. Cl. 84-421

9 Claims



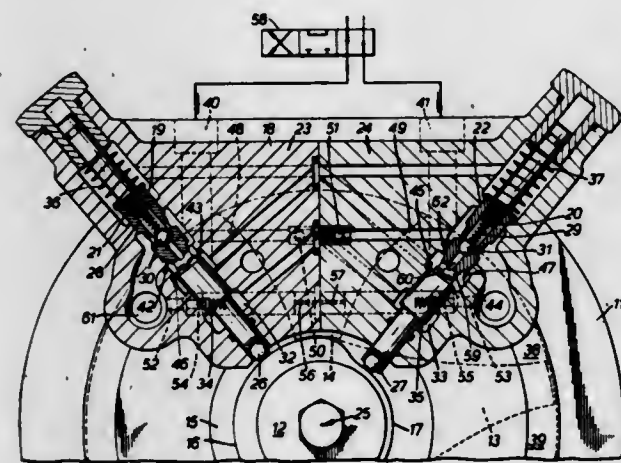
A holder for mounting a small musical instrument such as a tom-tom on a larger musical instrument such as a bass drum. The holder is adjustable to permit selective disposition of the tom-tom in any one of a plurality of different positions and is arranged to permit facilitated mounting and unmounting in such a manner as to assure that the tom-tom will be automatically repositioned in the same selected disposition during each successive mounting. The holder includes means for facilitated manual locking of the tom-tom in the mounted position.

3,576,150 RETARDING MECHANISMS FOR ROTARY FLUID PRESSURE OPERABLE ACTUATORS

John E. Hodges, Purton, near Swindon; Charles K. Dean, Cheltenham, and John M. Hyde, Lower Tuffley, England, assignors to Dowty Hydraulic Units Limited, Cheltenham, England

Filed Nov. 29, 1968, Ser. No. 780,024
Claims priority, application Great Britain, Dec. 5, 1967, 55172/67
Int. Cl. F15b 15/22; F01b 25/04; F15b 13/042
U.S. Cl. 91-20

4 Claims



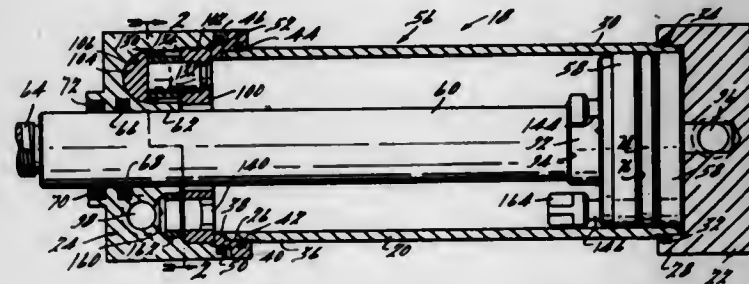
A fluid-pressure-operable actuator includes first restrictor means, effective upon fluid exhausting from the actuator, which are brought automatically into operation as the actuator approaches the end of its stroke. The actuator also includes second restrictor means operable then automatically to restrict the flow of in-going fluid to the actuator. The two restrictor means thereby provide a very positive arrangement for retarding the actuator as it approaches the end of its stroke.

3,576,151 PISTON LOCK FOR POWER CYLINDERS

Jack J. Sendoykas, 32001 E. Jefferson Ave., Apt. 1, St. Clair Shores, Mich.
Filed Mar. 11, 1969, Ser. No. 806,194
Int. Cl. F15b 15/26

U.S. Cl. 92-24

11 Claims



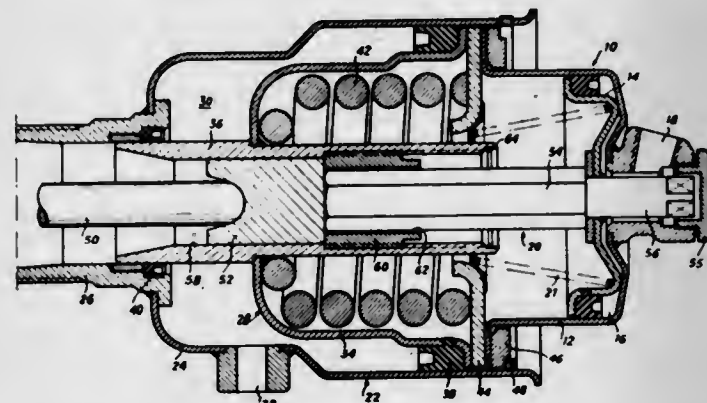
A power cylinder having means for holding and locking the piston at one end of its travel and operative to maintain a constant augmented force on the piston tending to move the latter in the direction of travel.

3,576,152 BRAKE OPERATING MECHANISM

Gerard Chevreux, Bois Colombes, France, assignor to Societe Anonyme D.B.A.
Filed May 8, 1969, Ser. No. 822,916
Claims priority, application France, May 14, 1968, 151,679
Int. Cl. F01b 7/10

U.S. Cl. 92-65

5 Claims



A brake operating mechanism includes a housing defining a chamber therewithin and a first tubular member slidably mounted in the chamber and extending therefrom. The outer surface of a second tubular member is threadedly engaged with the first tubular member, and the inner diameter of the second tubular member has a polygonal cross section, which slidably receives a shaft which has a corresponding polygonal cross section. A brake actuating rod is urged into engagement with the end of the second tubular member. A spring yieldably urges the actuating rod and the tubular members in a brake applying direction, but is normally opposed by fluid pressure in the chamber. The brake may be released after application by the resilient means by turning the shaft to move the second tubular member away from the actuating rod.

3,576,153 U-CUP SEAL FOR PISTONS

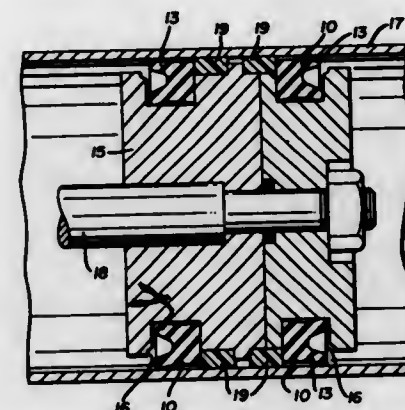
Kingsley A. Doult, Alpena, Mich., assignor to Scovill Manufacturing Company, Waterbury, Conn.
Filed Nov. 4, 1968, Ser. No. 772,974
Int. Cl. F16j 9/08

U.S. Cl. 92-244

2 Claims

A U-cup seal for pistons in piston and cylinder assemblies, the seal being formed in a size and shape that is different from that of its environmental use and location. Specifically the as formed seal shape is stretched when installed on a piston to be used in a piston and cylinder assembly and the distortion occurring from such stretching as well as that sub-

sequently occurring when the seal is subjected to fluid pressures in the piston and cylinder assembly reshape the seal to



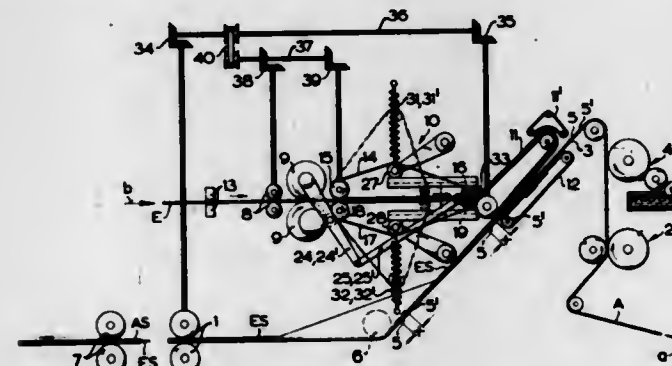
insure a leaktight location maintaining U-cup seal construction.

3,576,154 PROCESS AND APPARATUS FOR MANUFACTURING BAGS COMPRISING A LINER BAG WHICH PROTRUDES FROM THE OPENING

Friedrich Franz Brockmuller, Lengerich of Westphalia, Germany, assignor to Messrs. Windmoller & Holscher, Westphalia, Germany
Filed Jan. 13, 1969, Ser. No. 790,579
Claims priority, application Germany, Jan. 13, 1968, P 16 11 710.5
Int. Cl. B31b 1/20, 1/62, 7/02

U.S. Cl. 93-33

4 Claims



The bag comprises a single- or multiple-ply wrapper bag, preferably of paper, and a liner bag, preferably of plastics material sheeting, which protrudes from the wrapper bag at its filling end. The wrapper bag web consists in known manner of two or more transversely staggered plies and is divided into still connected, predetermined wrapper bag lengths by transverse perforation lines. Pieces corresponding to the length of the liner bags are cut from the liner bag web and are caused to overlap to the extent by which the liner bag is to protrude from the wrapper bag. The liner bag pieces are adhered at their leading end to the wrapper bag web while the overlap is retained so that the leading edges of the liner bag pieces are integral with the transverse perforation lines of the wrapper bag web, or are spaced a predetermined direction apart in the direction of travel behind said perforation lines. The wrapper bag web is subsequently formed into a tube which encloses the liner bag pieces adhered thereto. The wrapper bag web is torn along the transverse perforation lines into tube sections, which are fed to any desired, known end-closing machine.

Bags which comprise so-called liner bags are used for packaging delicate bulk materials, which are, e.g., hygroscopic or tend to dust off, or substances which are deleterious to health. The liner bags consist preferably of gas- or vaportight materials, particularly of plastics material sheeting, and in most cases have tightly adhered or heat-sealed seams to ensure a hermetic seal of the delicate contents from the atmosphere and contaminations. The wrapper bag which encloses the liner bag consists of strong paper. It protects the liner bag from damage and permits of making the liner bag from thin, inexpensive sheeting.

In many cases, the liner bag is longer than the wrapper bag and with its filling end protrudes from the wrapper bag.

When the liner bag has been filled, it can be carefully sealed at said protruding end, e.g., by a heat-sealed seam. The sealed filling end is then pushed or rolled up into the wrapper bag, which is subsequently closed, e.g., by a stitched transverse seam or by folding its end portion.

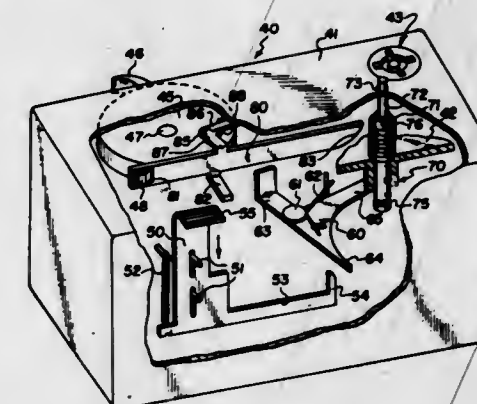
In the previous practice, the wrapper and liner bags have been made separately and the liner bag has been inserted into the wrapper bag by hand with its closed end leading. This manual work is time consuming and must be performed by two workers where the bags are large in size.

3,576,155 PHOTOGRAPHIC APPARATUS FOR USE WITH FLASH UNITS HAVING INDIVIDUAL STRIKER ELEMENTS

David E. Beach, Rochester, N.Y., assignor to Eastman Kodak Company, Rochester, N.Y.
Filed Oct. 8, 1968, Ser. No. 765,926
Int. Cl. G03b 9/70, 15/04

U.S. Cl. 95-11.5

6 Claims



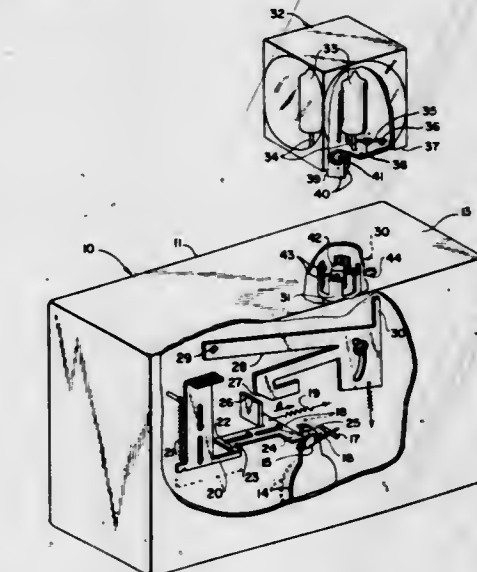
Photographic apparatus for firing percussion-ignitable multilamp photoflash units having individual, preenergized spring striker elements for each lamp of the unit and a base with an access opening through which each striker may be released. The apparatus includes a releasing mechanism shaped to enter an access opening and release a striker and a socket for receiving the unit with an access opening of the unit positioned to receive the releasing mechanism. The release mechanism is synchronized with the shutter operation of a camera for picture taking.

3,576,156 MECHANISM FOR ACTUATING IGNITION OF PERCUSSION-IGNITABLE FLASH LAMPS

Chester W. Michatek, Rochester, N.Y., assignor to Eastman Kodak Company, Rochester, N.Y.
Filed Oct. 14, 1968, Ser. No. 767,100
Int. Cl. G03b 9/70

U.S. Cl. 95-11.5

2 Claims



For use in photographic apparatus having a shutter, a shutter driver movable into engagement with the shutter to open the shutter, and a socket adapted to receive a percussion-ignitable flashlamp unit, a mechanism is provided for ac-

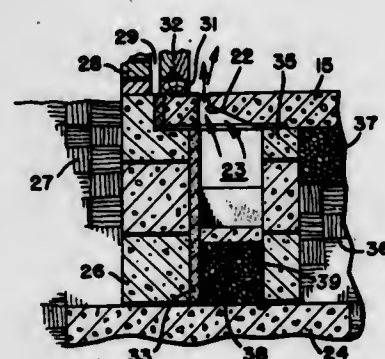
tuating ignition of a percussion-ignitable flashlamp unit received in the socket using motion of the shutter driver to supply the force for said actuation.

3,576,157 AIR-CONDITIONING SYSTEM

William J. Schald, 5262 Bittersweet Drive, Dayton, Ohio
Filed Sept. 6, 1968, Ser. No. 757,907
Int. Cl. F24f 7/06

U.S. Cl. 98—31

11 Claims



An air-conditioning system for a building including a diffuser built into the floor around the periphery of the building's exterior walls to supply air whose humidity, temperature, and purity has been precisely regulated into the room. A tapered duct supplies the air to the diffuser for constant flow through the diffuser at every point along the length of its outlet. In one embodiment, the diffuser is formed as part of a concrete slab floor and provides a screed rail for the finishing of this floor. In another embodiment, the diffuser is built into a wooden floor and forms an integral structural part thereof.

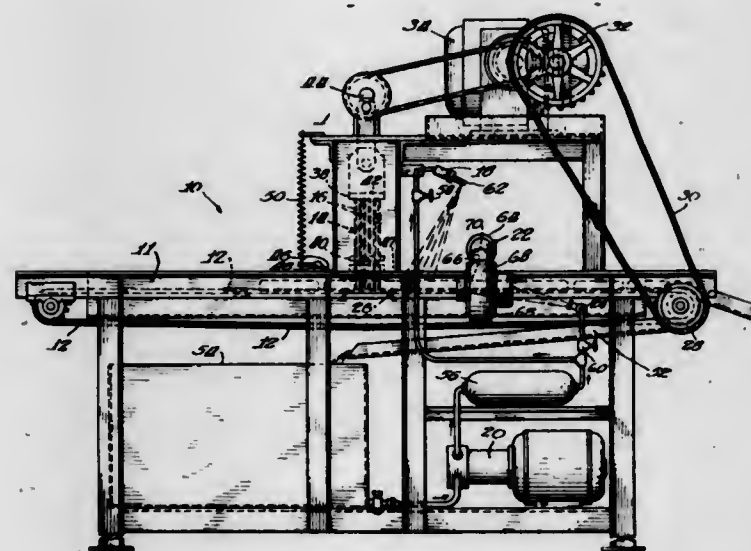
3,576,158 MEAT-TENDERIZING APPARATUS

Joseph Greenspan, Evergreen Park, Ill., and Clay E. Hawkins, Springfield, Mo., assignors to Frigidmeats, Inc., Chicago, Ill.

Filed July 17, 1967, Ser. No. 653,841
Int. Cl. A23l 3/34

U.S. Cl. 99—254

3 Claims



Moving meat incrementally on a conveyor belt, aperturing the meat in coordination with the belt movement with a group of pins having a coverage corresponding to the incremental advance of the belt, spraying a controlled rate of flow of liquid meat-tenderizing solution on the meat after it has been apertured, and blowing unabsorbed liquid from the upper surface of the meat with a high velocity airstream to evenly distribute and remove all excess unabsorbed liquid.

3,576,159 HEAT TREATMENT APPARATUS

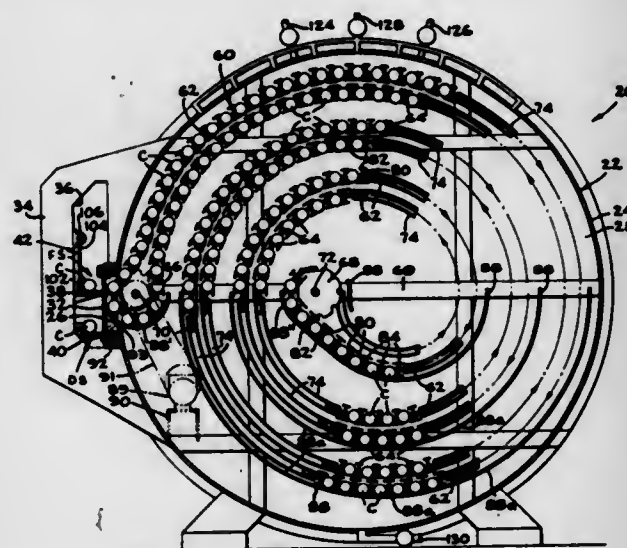
James L. Reimers, San Jose, Calif., assignor to FMC Corporation, San Jose, Calif.

Division of Ser. No. 660,281, Aug. 4, 1967, Pat. No. 3,510,320.
Filed Mar. 3, 1969, Ser. No. 817,601

Int. Cl. A23l 3/00

U.S. Cl. 99—365

5 Claims



A cooking and cooling apparatus having at least one housing with closed end walls and at least one elongated slot in the cylindrical wall to permit passage of rows of containers therethrough. Conveyor-supporting means are provided in the housing for supporting a conveyor so that a portion of the conveyor will assume a spiral configuration in the housing. Closure means are selectively moved between closed and open positions so that the rows of containers can be fed into the housing, be processed under superatmospheric conditions, and then be discharged from the housing.

3,576,160 TWINE TENSIONING ATTACHMENT

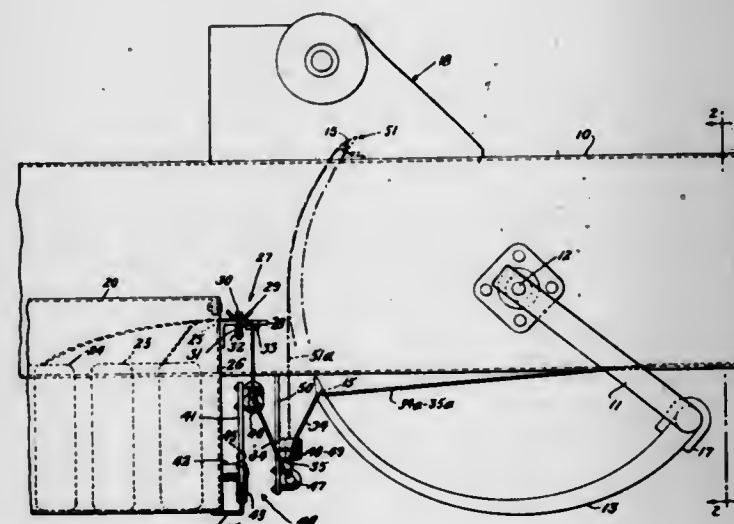
Floyd Myer, New Holland, and Ernest Schoeneberger, Lancaster, Pa., assignors to Sperry Rand Corporation, New Holland, Pa.

Filed Oct. 28, 1969, Ser. No. 871,857

Int. Cl. B65b 13/08

U.S. Cl. 100—21

5 Claims



A twine tensioning attachment for a baling machine having a spring loaded twine tensioning lever and twine guides located between a twine box and the needles of the baler for maintaining tension on the twine so as to withdraw slack twine during the tying cycle and thereby prevent looping of slack twine around the baler needles.

3,576,161 HORIZONTAL BALER APPARATUS

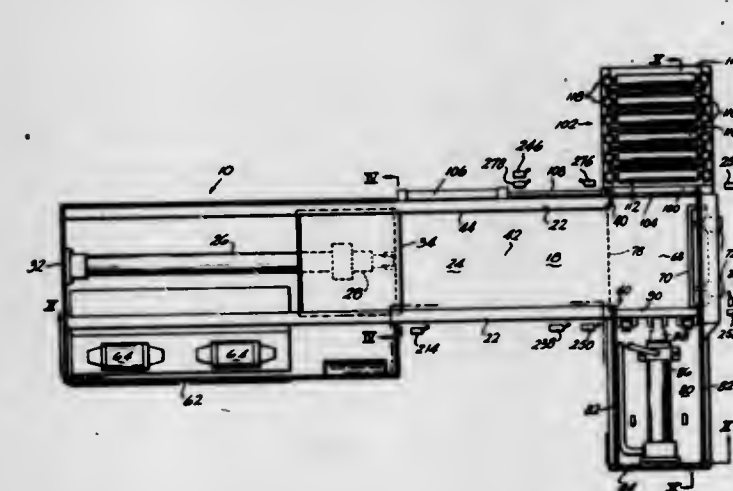
Colin S. Wright, Ann Arbor, Mich., assignor to American Holst & Derrick Company, St. Paul, Minn.

Continuation of application Ser. No. 661,070, Aug. 16, 1967, now abandoned. This application Dec. 1, 1969, Ser. No. 876,214

Int. Cl. B65b 13/04; B30b 15/32, 7/04

U.S. Cl. 100—25

10 Claims



A large-capacity baling apparatus having a horizontally disposed compression chamber directly loadable at its upper portion and including transversely moveable means for shifting the compressed medium from the compression chamber into a strapping chamber wherein compression and strapping occur in nonaligned, separate chambers.

3,576,162 MEAT PRESS

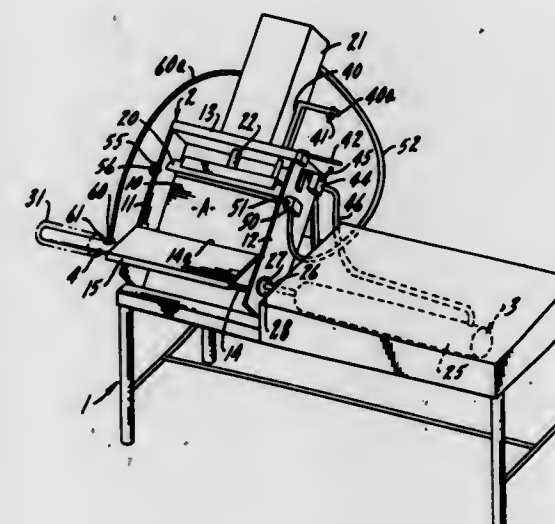
William J. McBrady, Hazelcrest, Ill., assignor to Smeco Industries, Inc., Chicago, Ill.

Filed Oct. 24, 1968, Ser. No. 770,212

Int. Cl. B30b 15/00

U.S. Cl. 100—53

2 Claims



An automatic meat press assembly including a press chamber, a ram movable into the chamber to press meat therein and an ejector, a chamber safety door and means precluding operation of the assembly when said door is open; means precluding operation of the ejector when the ram is out of pressing position; means precluding operation of at least the ejector when a casing is absent from the assembly and an automatic conveyor including means productive of operation of a ram and ejector in response to operation of said conveyor.

3,576,163 AUTOMATIC DOCUMENT HANDLING EJECTION APPARATUS

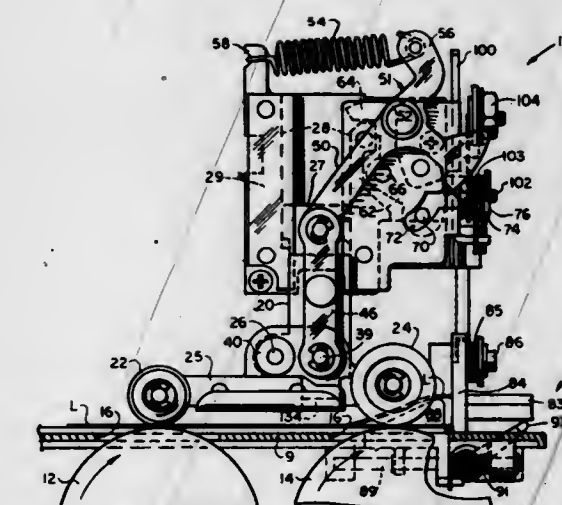
James G. Lawson, Norwalk, Conn., assignor to Pitney-Bowes, Inc., Stamford, Conn.

Filed Mar. 11, 1969, Ser. No. 806,099

Int. Cl. B65h 29/20

U.S. Cl. 101—233

17 Claims



A postage printing device having a letter eject mechanism operated in timed relation to the machine printing cycle. A pair of feed pressure rolls are spring driven into operative engagement with the imprinted letter so that a set of power driven rolls cooperating therewith can eject the letter from the print station. During the terminal portion of the machine cycle said pressure rolls are restored to and latched in their normal positions spaced from said driven rolls.

3,576,164 INCREMENTING PLATEN

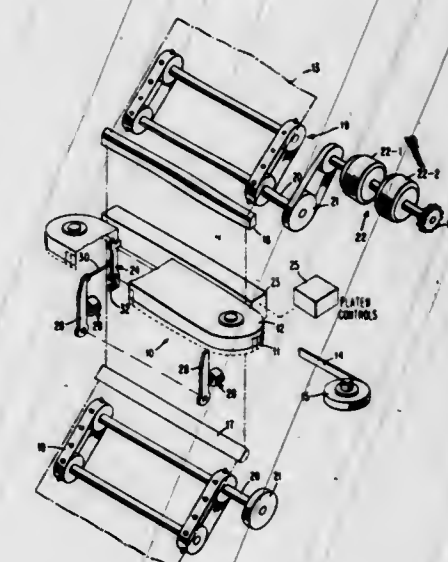
John E. Drejza, Endwell; Donald F. Manning, and Robert E. Pelkie, Endicott, N.Y., assignors to International Business Machines Corporation, Armonk, N.Y.

Filed June 25, 1969, Ser. No. 836,345

Int. Cl. B41j

U.S. Cl. 101—93C

10 Claims



In a printer, character-bearing type elements moving along a print line selectively impact a ribbon against a document backed by a platen to print on the document. The platen is automatically retracted at the end of each print cycle to provide adequate clearance for advancing the document for the next line of printing, whereupon it is advanced so as to provide an optimum space relation with the type elements for printing the next line.

3,576,165

SAFETY PROJECTILE PERCUSSION PRIMER

Heinz Gawlick, and Rudolf Stahlmann, Furth, Germany, assignors to Dynamit Nobel Aktiengesellschaft, Froisdorf, Germany

Filed Apr. 8, 1968, Ser. No. 719,542

Claims priority, application Germany, Apr. 7, 1967, D52736

Int. Cl. F42c 15/04; 15/34, 15/00

U.S. Cl. 102-73

14 Claims



A locking pin extends between the firing pin and primer element of a projectile to prevent their engagement during transport and while within the barrel of the firing device because of the radial abutment of a safety member that will move axially out of engagement only after the projectile has left the barrel of the firing device so that the locking member may move radially outward to arm the device. The safety member may be the radial abutment of the cartridge case tubular wall before firing and the interior surfaces of the firing device barrel during firing, with the locking member preferably being spring urged outwardly. Also, the safety member may be an axially extending pin prevented from rearward movement out of engagement with the locking member by a spacer disc separable upon exit from the barrel or the cartridge bottom piece.

3,576,166

DUAL HYDRAULIC TRANSMISSION DIESEL LOCOMOTIVE

Ernst Bollmann, Winterthur, Switzerland, assignor to Sulzer Brothers Limited, Winterthur, Switzerland

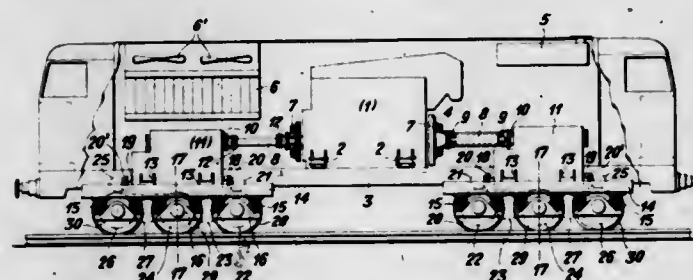
Filed Apr. 9, 1963, Ser. No. 271,795

Claims priority, application Switzerland, Apr. 11, 1962, 4461/62

Int. Cl. B61c 5/00, 9/14, 9/26

U.S. Cl. 105-96.2

3 Claims



A locomotive having a bridging girder supported on spaced driving trucks and having a diesel engine on the bridging girder between the trucks with a power takeoff at each end connected to an hydraulic transmission for driving the respective truck.

3,576,167

APPARATUS FOR PIGGYBACK RAIL TRANSPORTATION

Franklin S. Macomber, Park Ridge, Ill., assignor to A. F. Kearney & Company, Inc., Chicago, Ill.

Filed Feb. 27, 1969, Ser. No. 802,910

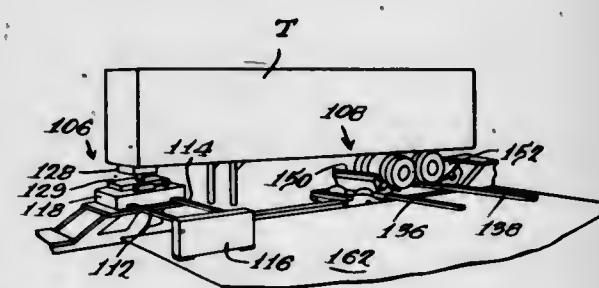
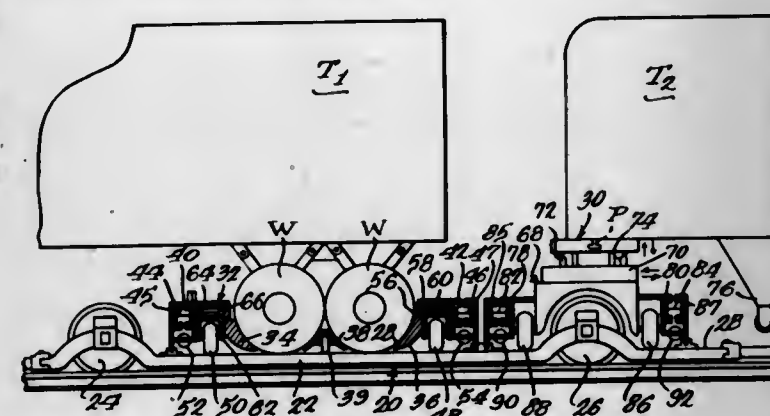
Int. Cl. B61d 3/00; B65j 1/14

U.S. Cl. 105-368B

6 Claims

An improved piggyback rail truck of a dropframe design having one platform for supporting the wheels of a highway

trailer and a second platform for supporting the nose of another trailer and including automatic mechanism for load-



ing and unloading a trailer from the side of a piggyback train comprised of such rail trucks.

3,576,168

DEVICE FOR USE IN MACHINES FOR PREPARING DOUGHS AND SIMILAR COMPOSITIONS

Adam B. Thylstrup, Stockholm, and Per-Marcus Bergquist, Lidings, Sweden, assignors to Kenwood Manufacturing (Woking) Limited

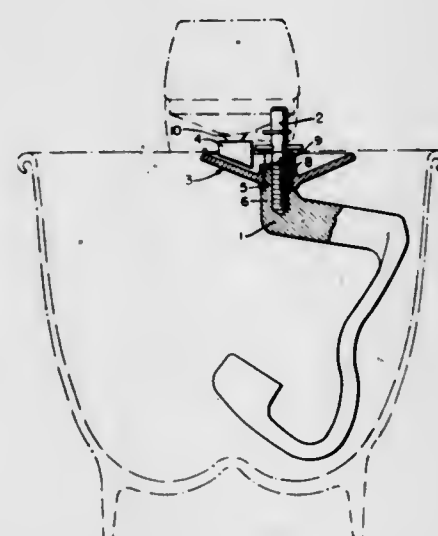
Filed Nov. 21, 1968, Ser. No. 777,580

Claims priority, application Sweden, Nov. 22, 1967, 16035/67

Int. Cl. A21c 1/14

U.S. Cl. 107-38

2 Claims



A dough hook for a domestic mixing machine having mounted thereon a frustoconical guard which in use is positioned immediately under the driving head of the machine, the guard is rotatable with respect to the hook and is itself secured against rotation, this preventing dough moving outwardly and fouling the driving head.

3,576,169

PALLET TIERING FRAME

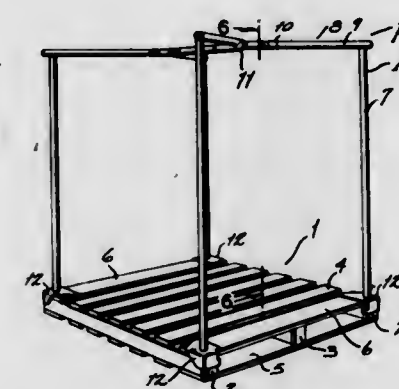
Thomas N. DePew, 10 Sunningdale, St. Louis, Mo. 63124

Filed Aug. 23, 1968, Ser. No. 754,939

Int. Cl. B65d 19/18

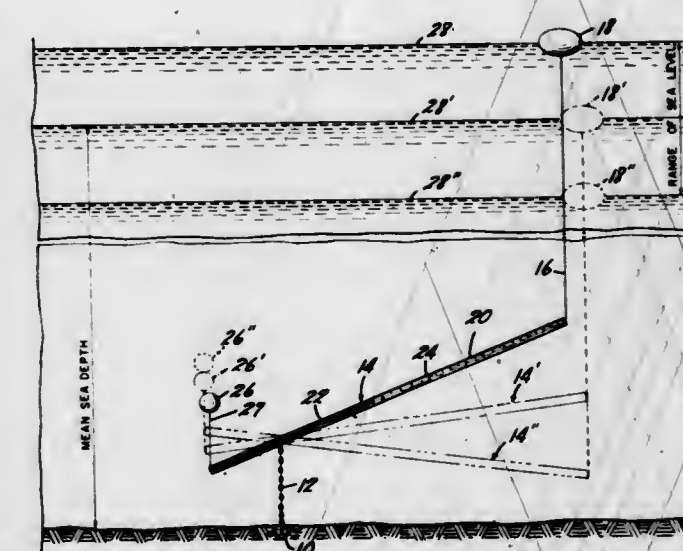
U.S. Cl. 108-53

7 Claims



A pallet tiering frame adapted for detachable engagement upon a storage pallet and incorporating structural components for simultaneously defining a loading zone, as well as support for overlying pallets; said frame being provided with uprights having foot members for positive engagement upon the pallet so as to render said frame stable against multidirectional forces applied during usage.

tides and waves the rigid member is angularly displaced about the point at which it is attached to the anchor. This

**3,576,172 DIRECTIONAL FLOW EXHAUST REGULATOR WITH FLUID CONTROL**

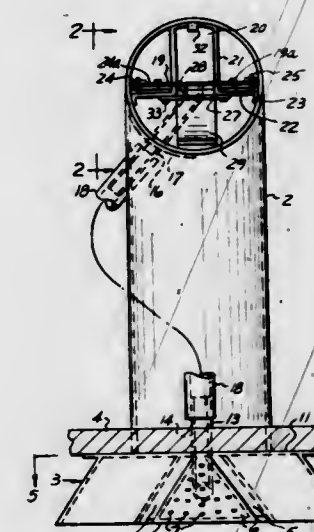
Lyle O. Ward, 615 River Road, Port Huron, Mich. 48060

Filed June 9, 1969, Ser. No. 831,642

Int. Cl. F01n 7/12

U.S. Cl. 115-0.5

13 Claims



An exhaust system for an internal combustion engine in a boat having a first conduit through which gases are exhausted into the atmosphere, said first conduit communicating with a second conduit through which gases are exhausted under the water, a valve mounted on a bracket installed in said first conduit and having a closed position to exhaust gases through the second conduit and an open position to exhaust gases through the first conduit, a third conduit to direct a flow of water against said valve to establish and maintain said closed position when said boat is moving, and a cavitator disposed beneath the boat's hull, and forwardly formed with a pressure chamber to receive water through a plurality of holes comprising an area greater than an escape hole so that water is forced through said escape hole into said third conduit under substantial pressure. The sidewalls of said cavitator are downwardly, outwardly angled to afford a downward pressure of water passing over said sidewalls to counteract any tendency of the cavitator to lift the boat from an even keel.

3,576,171

MOORING APPARATUS

Andrew W. D'Angelo, New York, N.Y., assignor to Merritt Division of Murphy Pacific Marine Salvage Company, New York, N.Y.

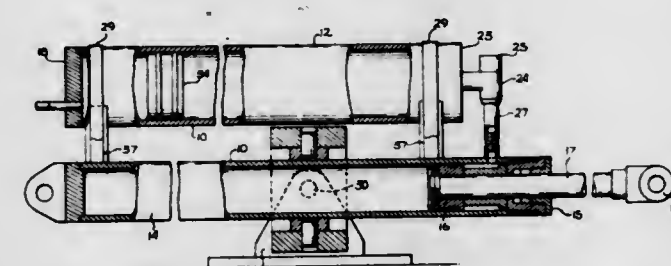
Filed Apr. 4, 1969, Ser. No. 813,555

Int. Cl. B63b 21/24, 21/52

U.S. Cl. 114-206

6 Claims

A mooring apparatus which includes an elongated rigid member having two sections one of which is more dense than the other. The less dense section of the rigid member is anchored to the bottom of a body of water. The more dense end is attached, by a catenary, to a buoy floating on the surface of the water. When the buoy moves up and down due to



A system is disclosed for providing surge dampening particularly adaptable for mooring and towing vessels. The surge dampener is coupled in the line or gear utilized to moor or tow a vessel. The forces created in the line by the action of the wave motion on the vessels are greatly dampened, reducing the force applied to the line and to the points to which they are secured. The system utilizes a hydraulic-gas dampener.

3,576,173
SHALLOW WATER TRIM ADJUSTMENT FOR
OUTBOARD PROPULSION UNITS

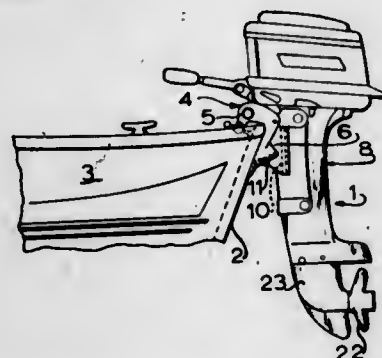
Edward F. Ginnow, Omro, Wis., assignor to Brunswick Corporation, Chicago, Ill.

Filed July 18, 1969, Ser. No. 843,075

Int. Cl. B63h 21/26

U.S. Cl. 115-17

7 Claims



There is disclosed for inclusion on an outboard propulsion unit having abutment means establishing a first operating trim position for the drive member at a given rake angle, a trim adjustment member selectively engageable with the abutment means to provide for a second operating trim position for the drive member at a rake angle greater than the given rake angle for use, by way of example, for shallow water operation.

3,576,174
TALLYETTE

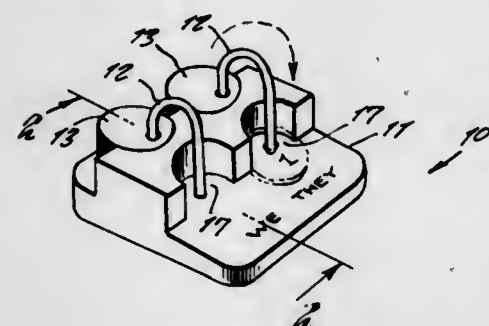
Earl A. Topel, and Delores M. Topel, 510 S. Main St., Lake Mills, Wis. 53551

Filed Sept. 16, 1969, Ser. No. 858,312

Int. Cl. G09f 9/00

U.S. Cl. 116-121

1 Claim



An improved scorekeeper for various games, the device comprising a base having a pair of inverted U-shaped stanchions serving as a ring on which there are tethered a plurality of numbered poker chips which are individually slideable from one side to the other so as to indicate a score for opposing teams of players.

3,576,175
CONDITION INDICATOR

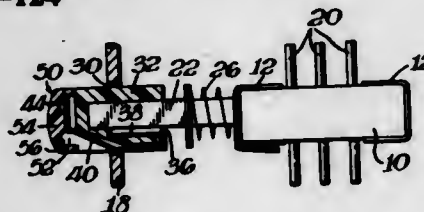
Lawrence A. Gamnill, Colorado Springs, Colo., assignor to Hewlett-Packard Company, Palo Alto, Calif.

Filed Mar. 20, 1969, Ser. No. 808,937

Int. Cl. G09f 9/00

U.S. Cl. 116-124

4 Claims



A pushbutton which has a magnifying lens front houses an internal display flag operated by a cam follower. The cam

follower in turn is operated by the axial movement of the pushbutton relative to the instrument housing containing the pushbutton. The magnifying lens permits words or symbols printed on the display flag and appearing behind the lens to be greatly magnified. The particular sets of words or symbols appearing behind the magnifying portion of the lens are greatly emphasized and appear more readily to the viewer in front of the instrument panel.

3,576,176
COOPERATIVE HISTOLOGIC TISSUE CAPSULE AND
CAPSULE RACK

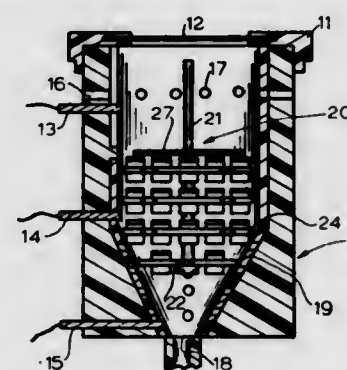
John E. P. Pickett, 3323 Pinafore Drive, Durham, N.C.

Filed Sept. 23, 1969, Ser. No. 860,207

Int. Cl. B05c 11/14

U.S. Cl. 118-500

4 Claims



A rack handle mounts a set of vertically spaced discs each of which has a series of numbered holes. Each hole is adapted to loosely receive the body portion of an individual porous histology-processing tissue capsule and the capsule body portion is adapted to receive a cap which expands and wedges the body portion in place in its respective disc hole enabling a large number of histology tissue specimens to retain their identity in individual capsules and to be processed simultaneously.

3,576,177
MULTIPLE-BOILER TEMPERATURE CONTROL
SYSTEM HAVING BOILER SEQUENCING, REVERSE
ORDER FIRING, AND INDIVIDUAL BOILER
MODULATION WITH OUTDOOR TEMPERATURE
RESET

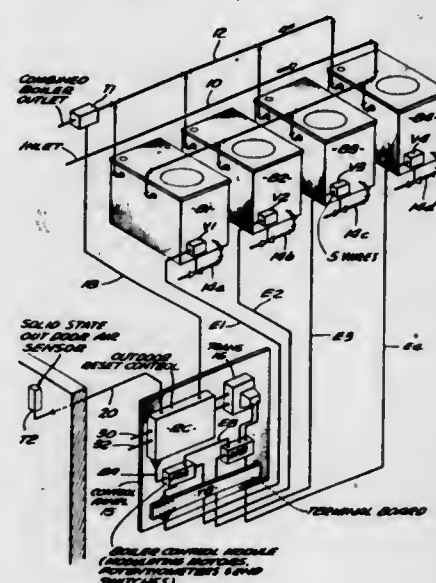
Leo Block, Temple City, and James E. Leonard, Norwalk, Calif., assignors to Raypak Company, Inc.

Filed Nov. 10, 1969, Ser. No. 875,037

Int. Cl. F22b 35/00

U.S. Cl. 122-1

12 Claims



The invention is a multiple-boiler system having *N* boilers with sequencing control. Each boiler has modulating control by way of control of a gas valve. The boilers are brought on

in sequence, or fired in sequence in response to load requirements, each boiler being modulatingly controlled while on. The control is from boiler outlet temperature, reset by outdoor temperature. At predetermined intervals the sequence of firing of boilers is reversed so as to tend to even out the firing time of all boilers. The control system is constructed to accommodate itself to use of commercially available control instrumentalities.

3,576,178
SHELL-AND-TUBE STEAM GENERATOR WITH
ECONOMIZER

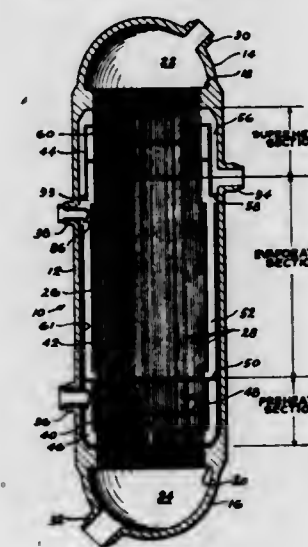
Paul C. Zmola, Bloomfield, Conn., assignor to Combustion Engineering, Inc., Windsor, Conn.

Filed Dec. 24, 1969, Ser. No. 888,020

Int. Cl. F22b 1/06

U.S. Cl. 122-32

17 Claims



A shell and tube vapor-generator is provided in which vaporizable liquid is transformed into vapor by passing it in heat transfer relation with heating fluid conducted through the tubes and a method for operating the same. The vaporizable liquid is preheated to about saturation temperature before being passed to the vapor-generating section of the unit. At full load operation the liquid is preheated by passing it in indirect heat transfer relation with the heating fluid conducted through the tubes. At low load operation it is preheated by condensing a portion of the vapor produced in the vapor-generating section and at intermediate loads preheating is accomplished by a combination of the two.

3,576,179
ECONOMIZER FOR SHELL-AND-TUBE STEAM
GENERATOR

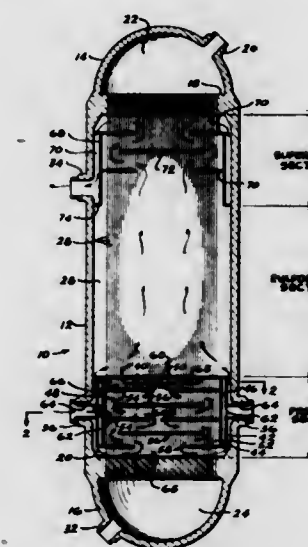
Nicholas D. Romanos, Chattanooga, Tenn., assignor to Combustion Engineering, Inc., Windsor, Conn.

Filed Dec. 24, 1969, Ser. No. 887,966

Int. Cl. F22b 1/06

U.S. Cl. 122-32

4 Claims



A preheater or economizer section is provided in a shell-and-tube vapor generator. The preheater section is baffled to

conduct incoming feedwater along a flow path within which it will be heated to an elevated temperature before contacting parts of the vapor generator unit that would be susceptible to thermal stresses.

3,576,180
STARTUP DEVICE FOR FLOW-THROUGH STEAM
GENERATOR

Rupprecht Michel, Erlangen, Germany, assignor to Siemens Aktiengesellschaft, Berlin, Germany

Filed Dec. 6, 1968, Ser. No. 781,931

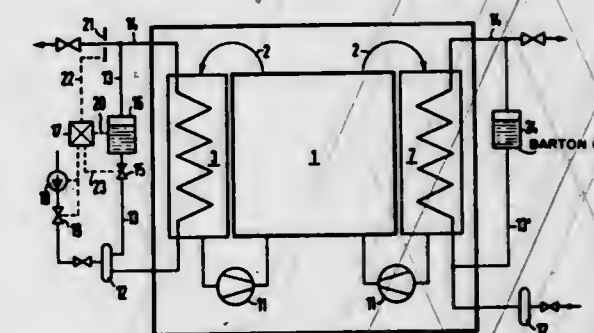
Claims priority, application Germany, Dec. 9, 1967,

P 15 76 881.7

Int. Cl. F22d 7/12

U.S. Cl. 122-406

6 Claims



Device for starting up and restarting a reactor-heated flow-through steam generator and having a relatively constantly inclined tube system traversable by feedwater in upward direction in counterflow to a gaseous heat carrier, includes a tube stringer located externally to the generator and branching off from the feedwater inlet to the tube system, a measuring element connected in the stringer for monitoring the quantity of feedwater contained in the generator, and valve means connected in the stringer and operatively connected to the measuring element and responsive thereto for controlling feedwater flow through the stringer whereby a predetermined partial filling of the tube system with feedwater is produced and maintained.

3,576,181
APPARATUS FOR DEAERATING AN ENGINE COOLING
SYSTEM

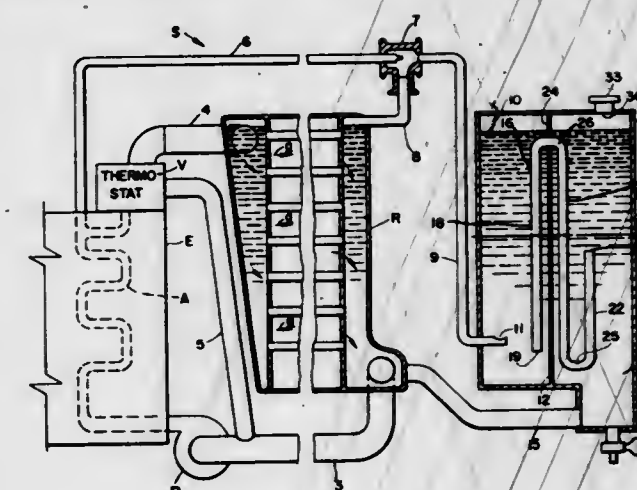
James E. Neal, Columbus, Ind., and Kenneth C. Kirkland, Longview, Tex., assignors to Cummins Engine Company, Inc., Columbus, Ind.

Filed June 2, 1969, Ser. No. 832,877

Int. Cl. F01p 3/20

U.S. Cl. 123-41.51

10 Claims



In an engine-cooling system, apparatus for deaerating the system including a makeup water tank that can be placed laterally adjacent to the system's radiator, instead of above the radiator. For a vehicular engine, such a placement of the makeup water tank enables one to achieve a low vehicle profile, but if the deaerating apparatus is not properly designed, serious problems arise in keeping air out of the

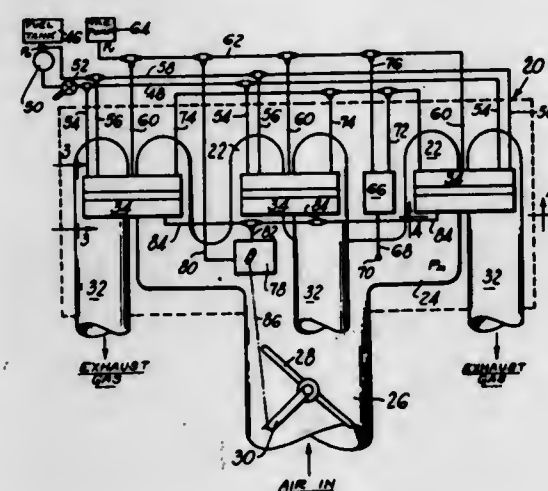
radiator and the engine, both when the engine is running and when it is shut down, and in enabling the system to be properly filled and drained. The invention solves these problems by an aspirator connected to the vent lines from the engine and radiator, and a system of waterlines and ports that permit proper venting of the engine and radiator during filling and draining, yet prevent a backflow of air into the engine and radiator at times other than filling and draining.

3,576,182
COMBUSTION ENGINE FUEL INJECTION APPARATUS
HAVING FLUIDIC CONTROL MEANS
George R. Howland, South Bend, Ind., assignor to The Bendix Corporation

Filed July 9, 1969, Ser. No. 840,293
Int. Cl. F02d 7/00

U.S. Cl. 123-119

12 Claims



Fuel injection apparatus for a multicylinder reciprocating engine having a separate fuel injection nozzle connected to supply each cylinder wherein each fuel injection nozzle is supplied an automatically controlled flow of pressurized fuel in response to exhaust gas temperature of the cylinder associated therewith independently of the remaining cylinders by an associated pure fluid amplifier control network to establish optimum fuel-air ratio for each cylinder. The pure fluid amplifier control network for each cylinder includes a fixed frequency oscillating fluid amplifier and a bistable fluid amplifier slaved thereto which produces a corresponding fixed frequency pressure pulse output at each of two output ports thereof. One of the two output ports is connected, via passage means exposed to cylinder exhaust gas temperature, to a control input port of a monostable amplifier and the other output port is vented to an opposing control input port thereof such that the phase relationship of the opposing pressure pulses to the control input ports varies as a function of the cylinder exhaust gas temperature. The resulting output pressure derived from the monostable amplifier is applied to a fuel-powered proportional fluid amplifier which proportions fuel flow to the cylinder accordingly.

3,576,183
IGNITION SYSTEM FOR A TWO-CYCLE ENGINE
Mitsunori Miyamoto, and Mitsuo Katsumata, Numazu-City, Japan, assignors to Kokusan Denki Co., Ltd., Numazu-City Shizuoka-Prefecture, Japan

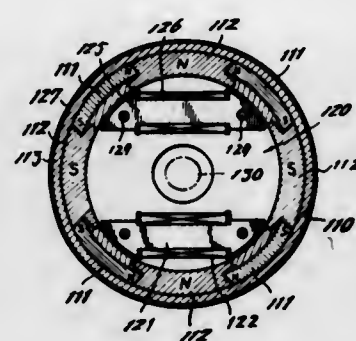
Filed Oct. 31, 1969, Ser. No. 872,991
Int. Cl. F02p 1/00

U.S. Cl. 123-148E

20 Claims

An ignition system for a two-cycle engine comprising in combination a magnet-type generator having a magnetic field provided by a plurality of magnets and housing a capacitor charging coil and a signal coil therein for cooperation with said magnetic field, a capacitor charged with the output of said charging coil, an ignition coil having a primary coil and a secondary coil through which primary coil a discharge cur-

rent flows as said capacitor is discharged, an ignition plug connected to said secondary coil and a solid-state-type switch

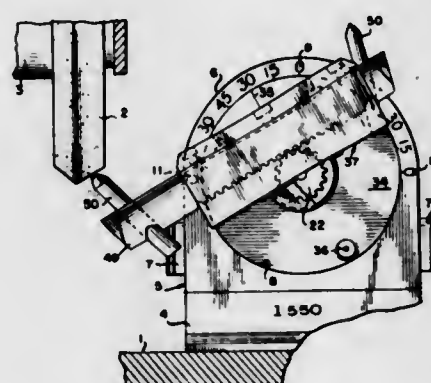


3,576,184
GRINDING WHEEL ANGLE DRESSERS
Kenneth W. Nichols, 455 S. Bedford Drive, Beverly Hills, Calif. 90212

Filed July 23, 1969, Ser. No. 843,998
Int. Cl. B24b 53/00

U.S. Cl. 125-11

11 Claims



The present invention relates to a device for dressing the peripheral face or faces of abrasive grinding wheels to any desired angle within 180° of arc, and has particular reference to a portable, relatively simple, and compact dressing device which embodies mechanisms whereby the same device is capable of being rapidly and accurately set to either (1) dress the peripheral face or faces of an abrasive grinding wheel to any increment of, say, 15° through 180° of arc by the relatively simple and accurate operation of inserting a selector pin into any chosen one of a predetermined number, say 13 slots or stations, spaced, say 15° apart, or (2) wherein the same device may also be employed in cases where micro-matic settings are necessary or required, by the use of gauge blocks or combinations of gauge blocks of a sufficient and predetermined overall length or width which may be readily determined by mathematical calculation of the sine of any degree of angle or component fractions thereof throughout the entire 180° of arc.

3,576,185
SLEEP-INDUCING METHOD AND ARRANGEMENT
USING MODULATED SOUND AND LIGHT

Hansrichard Schulz, Villingen Black Forest, and Oskar Meseck, Singen Hohentwiel, Germany, assignors to Saba Schwarzwälder Apparate-Bau-Anstalt August Schirer Sohne GmbH, Villingen Black Forest, Germany

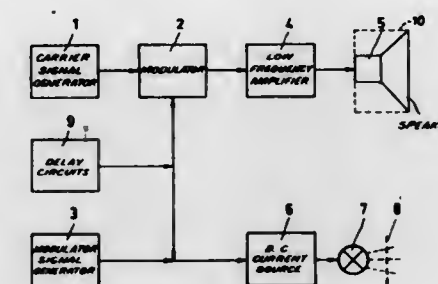
Filed June 19, 1968, Ser. No. 741,154
Int. Cl. A61n 1/34

U.S. Cl. 128-1

19 Claims

A tone or a blue light are modulated slowly between a perceivable maximum and a perceivable minimum with a perceivable period. Both the light and the tone are switched in after a time delay past the energization of the carrier and

modulating signal generators used in the generation of the modulated light and tone, so that no transient effects are visible to the patient. The switch-out process is similarly effected in gradual stages to reduce transient effects.



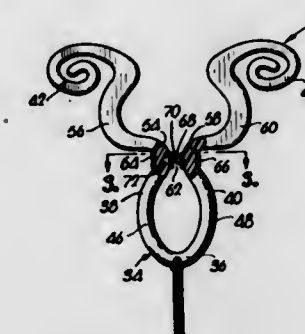
ble to the patient. The switch-out process is similarly effected in gradual stages to reduce transient effects.

3,576,186
METALLIC COMPONENT FOR INTRAUTERINE
CONTRACEPTIVE DEVICE
Ralph R. Robinson, P.O. Box 668, Middlesboro, Ky.

Filed Jan. 10, 1969, Ser. No. 790,271
Int. Cl. A61f 5/46

U.S. Cl. 128-130

9 Claims



An intrauterine contraceptive device having a loop that is normally closed during use and when properly positioned within the uterus but capable of opening when not properly positioned within the uterus. A metallic component which may form a part of the releasable structure of the loop enhances the contraceptive effect of the device.

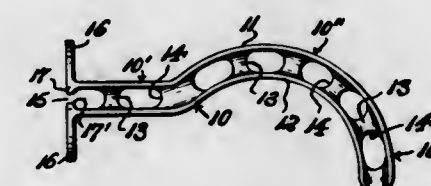
3,576,187
AIRWAY WITH RESILIENT BITING AREA
Giovanna Oddera, 214 Ballantine Parkway, Newark, N.J. 07104

Continuation of application Ser. No. 530,237, Feb. 25, 1966, now abandoned. This application Oct. 30, 1968, Ser. No. 772,472

Int. Cl. A61m 25/00

U.S. Cl. 128-351

5 Claims



An improved oral-pharyngeal anesthesia airway has a resilient portion in the area normally contacted in use by the patient's teeth which is yieldable to biting pressure to provide a tooth-cushioning effect, and means for preventing complete closure of the air passage through the resilient portion under biting pressure.

3,576,188
PIVOT DUMPING STONE TRAP
Dale Richard Tanis, East Moline, Ill., assignor to International Harvester Company, Chicago, Ill.

Filed Apr. 18, 1969, Ser. No. 817,509

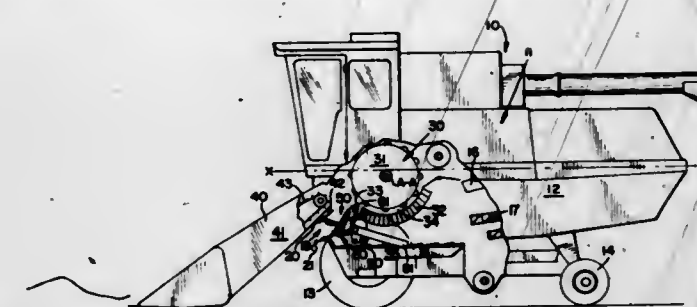
Int. Cl. A01f 12/16

U.S. Cl. 130-27JT

3 Claims

An apparatus for collecting and disposing of stones that are fed into a combine harvester. A trough-shaped trap is

supported and secured in a collecting position and can be shifted to a dumping position at which the trough tends to



empty itself and is accessible for inspection and service.

3,576,189
APPARATUS FOR MOVING, WASHING, DRYING,
INSPECTING AND PACKAGING CENTERLESS GROUND
CERAMIC BODIES

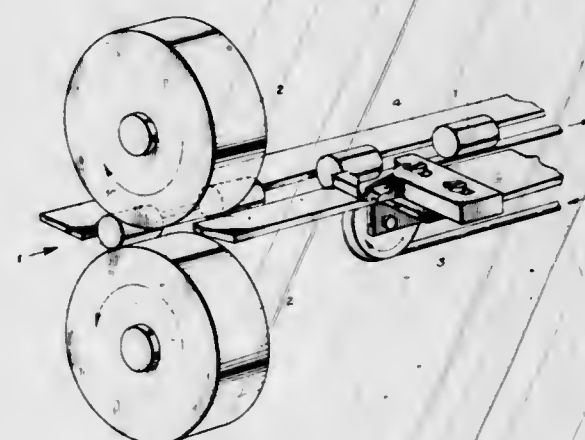
Walter Lorenz, Kahl/Main; Ernst Munz, Niederrodenbach; Dieter Nowak, Dahl/Main; Friedrich Ploger, Kleinstheim, and Horst Roepenack, Bruchkobel, Germany, assignors to NUKEN, Nuklear-Chemie Und -Metallurgie Gesellschaft mit beschränkter Haftung, Wolfgang near Hanau am Main, Germany

Filed Mar. 11, 1969, Ser. No. 806,117
Claims priority, application Germany, Mar. 16, 1968, P 15 56 753.0

Int. Cl. B08b 3/02; B24b 5/22

U.S. Cl. 134-62

3 Claims



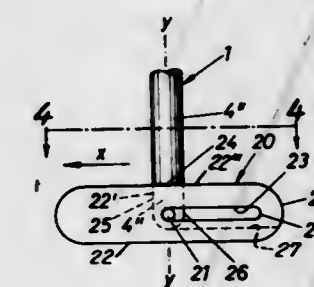
Centerless ground ceramic bodies for fuel rods are mechanically conveyed from a centerless grinder through the steps of washing, drying, inspecting and packaging. The apparatus eliminates additional manual operation, does not damage the bodies and is economical.

3,576,190
COLLAPSIBLE FLAT UMBRELLA
Fritz Bremshey, Solingen-Ohligs, Germany, assignor to Telesco Brophy Limited, Montreal, Quebec, Canada

Filed Mar. 7, 1969, Ser. No. 805,125
Int. Cl. A45b 11/00, 19/04, 19/06

U.S. Cl. 135-20

4 Claims



A collapsible umbrella, longitudinally collapsible from an erected condition to produce a generally rectangular, small,

flat package when stowed and including an improved, two-position handle on the lower end of the umbrella stick; the handle in one attitude being positionable generally along the longitudinal axis of the umbrella stick, and in another attitude being positionable transversely of the stick; in the first-mentioned attitude a radially stable gripping knob being provided, and in the later attitude the handle provides a second-type transverse gripping knob being provided as well as a shorter folded or collapsed umbrella to facilitate production of a small and flat stowage or carrying package.

3,576,191

TEMPERATURE-RESPONSIVE SONIC OSCILLATOR

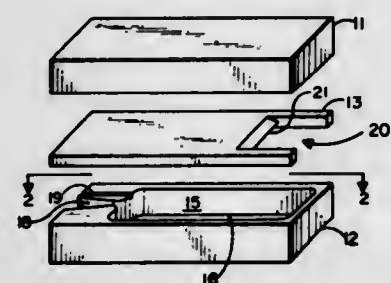
Gary L. Innes, Brooklyn Park, Minn., assignor to Honeywell Inc., Minneapolis, Minn.

Filed Feb. 24, 1969, Ser. No. 801,429

Int. Cl. F15c 1/08, A100

U.S. Cl. 137-81.5

10 Claims



A temperature sensor of the fluidic oscillator type comprising a housing enclosing a chamber having an inlet aligned with an axis and an outlet configured to facilitate choked flow therethrough. The sensor includes a divider element separating the chamber into two subchambers, each having its maximum dimension substantially parallel to the inlet axis. The divider element is provided with a knife edge oriented toward and separated from the inlet. Means may also be included for directing a portion of the fluid whose temperature is to be measured along outside surfaces of the housing to provide improved transient response.

3,576,192

HYDRAULIC UNIFLOW CONTROL UNIT

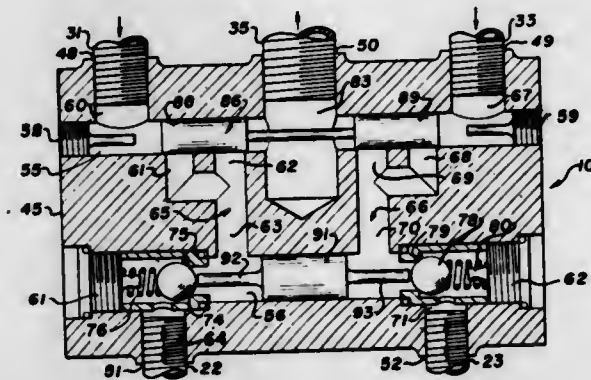
Ray A. R. Wood, and Robert A. Atkins, Vancouver, British Columbia, Canada, assignors to Capilano Engineering Co. Ltd., Vancouver, British Columbia, Canada

Filed Nov. 10, 1969, Ser. No. 875,030

Int. Cl. F15b 1/108

U.S. Cl. 137-102

4 Claims



There is disclosed a hydraulic control unit particularly for use in steering apparatus for boats, and in which the hydraulic fluid always flows in the same direction. The unit has pressure passages having ends to be connected to opposite sides of a pumping unit and opposite ends to be connected to the device to be controlled, such as the opposite ends of a slave cylinder which operates the rudder of a boat. A shuttle valve normally closes off the pressure passages and shuts them off from a common return passage which is connected to the

reservoir of the pumping unit. When hydraulic fluid flows through one pressure passage, it shifts the shuttle valve to open the passage and connect the other passage to the return passage. The flowing fluid also passes through a check valve in the pressure passage and shifts a lock spool to open a corresponding check valve in the other pressure passage.

3,576,193

HIGH FLOW REGULATING AND RELIEF VALVE

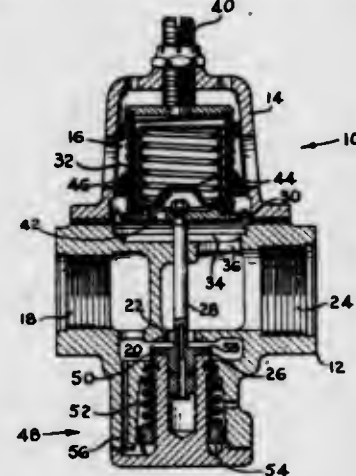
Neal B. Rothfuss, and Frederick Kaiser, Clinton, N.Y., assignors to The Bendix Corporation

Filed June 11, 1969, Ser. No. 832,110

Int. Cl. G05d 1/100; F16k 31/12

U.S. Cl. 137-116.5

3 Claims



A regulating and relief valve is disclosed characterized by being able to provide two stages of regulation. The first stage of regulation controls total fluid flow to the fluid pressure regulating second stage. This permits the valve to interface between a high-flow (or high-pressure) source and a utilization means requiring greatly reduced maximum pressures.

3,576,194

REGULATOR VALVE

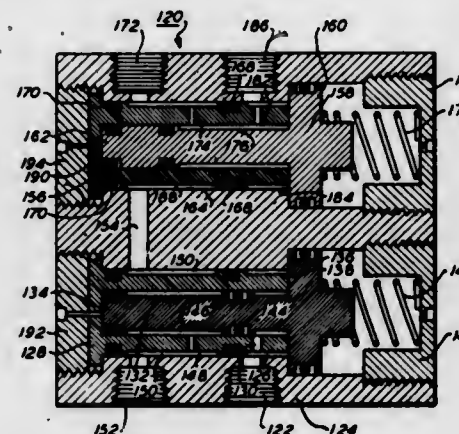
Kaj Christensen, 27 Sunset Hill Ave., Norwalk, Conn.

Filed Feb. 11, 1965, Ser. No. 431,931

Int. Cl. G05d 1/100

U.S. Cl. 137-118

21 Claims



A regulator valve operative to open and close outlet ports in accordance with a differential pressure between the inlet and outlet conduits utilizing an actuator having O-rings fitted with O-ring grooves which O-ring grooves are slightly wider than the O-rings so that the O-rings will be compressed in the grooves by the inlet pressure to a depth equal to or less than the depth of the O-ring groove so as to prevent wear on the O-rings as they pass the openings during movement of the valve actuator. The movable valve actuator with its associated O-rings is additionally designed for different types of operations controlling more than one inlet port and more than one outlet port.

3,576,195

APPARATUS ALLOWING ACCESS TO A PRESSURIZED FLUID CHAMBER

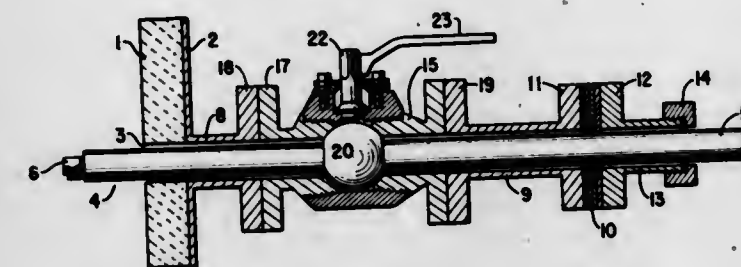
William P. Richard, Jr., Monroe, La., assignor to Cities Service Company

Filed Dec. 16, 1968, Ser. No. 791,848

Int. Cl. F16k 51/00

U.S. Cl. 137-317

7 Claims



Means for inserting and removing an elongated member through an opening in the wall of a chamber without significant flow of material through the opening which would be caused by a difference in pressure on either side of the wall. Inserted members such as pipes, probes and the like extend through a conduit which communicates with the chamber, and seal means is provided between the external surface of the inserted member and the inside wall of the conduit. Valve means for opening and closing the conduit to flow of material is located between the seal means and the opening in the chamber wall. The inserted member is movable back and forth within the conduit and the valve means is adapted for passage of the member through it.

3,576,196

HOSE WINDING AND STORING ASSEMBLY

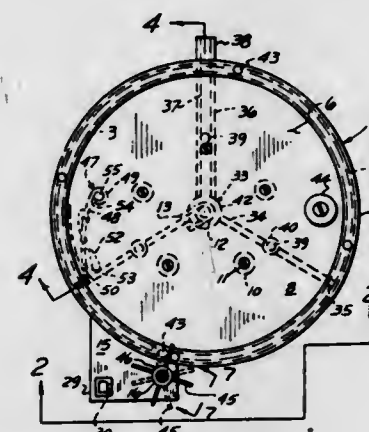
Mgrdich G. Atanosian, 5887 Pine, Taylor, Mich. 48180

Filed May 12, 1969, Ser. No. 823,703

Int. Cl. B65h 75/00, 79/00

U.S. Cl. 137-355.26

5 Claims



An assembly comprising a reel rotatably received in a housing adapted to pass a hose inwardly and outwardly thereof to wind upon, and unwind from the reel, with a hose guide to guide the hose upon the reel in uniformly successive windings or coils, a restraint to yieldably resist dislodgment of said windings, and conduit means to maintain rigidity of the housing and conduct water to a hose.

3,576,197

DIVERTER SPOUT WITH PLASTIC PRESSURE CHAMBER

William R. Bastian, Belmont, Mich., assignor to Grand Rapids Die Casting Corporation, Grand Rapids, Mich.

Filed Jan. 15, 1970, Ser. No. 2,997

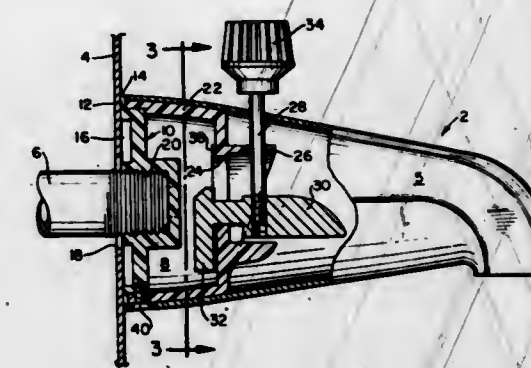
Int. Cl. F16k 31/44

U.S. Cl. 137-359

9 Claims

A spout for diverting the flow of fluid has a plastic pressure chamber which is inserted into the fluid input end of the

spout housing and which coacts with a diverter valve to



prevent the flow of fluid through the spout housing.

3,576,198

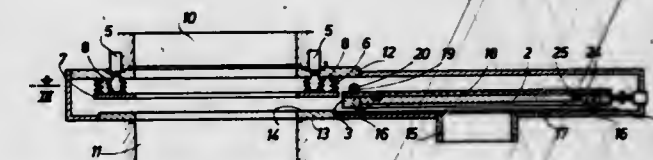
GREAT-DIAMETER VALVE FOR ULTRAHIGH VACUUM
Jean Jacques Bessot, Arpajon, France, assignor to Societe Anonyme: Societe Alsacienne De Constructions Atomiques De Telecommunications Et D'Electronique, Alcatel, Paris, France

Filed June 26, 1968, Ser. No. 740,267

Claims priority, application France, June 27, 1967, 112,125
Int. Cl. F16k 27/12, 3/02

U.S. Cl. 137-375

4 Claims



The valve includes a valve member of great diameter provided with an elastomer seal and borne by a carriage allowing its translational motion during the valve-opening or closing movements. An insulating chamber provided within the valve case houses the valve member when the valve is open. A metal bellows is caused by pneumatic jacks to engage the valve member, when the valve is closed. In the open condition, said chamber ensures thermal insulation of the valve member and protects the seal thereof during heating at high temperature of the ultrahigh vacuum vessel components.

3,576,199

ANTICORROSION BALL COCK FLUID FLOW CONTROL ASSEMBLY

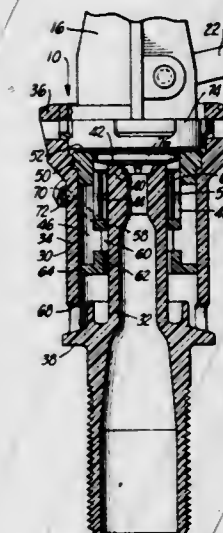
Adolf Schoepe, 1620 N. Raymond Ave., Fullerton, Calif., and Fredric E. Schmuck, 535 Century Drive, Anaheim, Calif.

Filed Mar. 28, 1969, Ser. No. 811,293

Int. Cl. E03d 1/32; F16k 31/34

U.S. Cl. 137-414

4 Claims



A molded plastic unitary water flow director forms a water outlet portion having a part of a valve lower housing portion

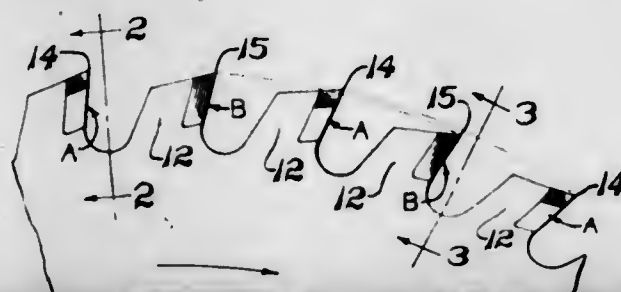
as an upward extension thereof and telescoping a water inlet portion extending centrally into the lower housing portion. A valve seat is formed at an end of the inlet portion and a water outlet chamber is formed between the inlet and outlet portions opening upwardly into the lower housing portion adjacent the valve seat. A separate plastic filtering member is inserted downwardly into the water chamber receiving water from over the valve seat into a filtering chamber thereof and filtering said water outwardly into said outlet chamber with a portion thereof passing directly outwardly through a refill hose nipple and the remainder passing circuitously downwardly through and outwardly of said water chamber into the interior of a water tank. An upper annular edge of the filtering member clamps an annular zone of a resilient sealing member within the valve formed by said lower housing portion and an enclosing upper housing portion, the sealing member within the housing portions being float controlled for movement and in turn controlling the flow of water over the valve seat.

3,576,200 CIRCULAR SAW

John A. Elmes, Canton, Ohio, assignor to Heinemann Saw Corporation, Canton, Ohio
Filed Feb. 26, 1969, Ser. No. 802,488
Int. Cl. B27b 33/08

U.S. Cl. 143-133

3 Claims



shear at its end. Also mounted on the boom assembly is storage means for storing a plurality of choker cables which are attached to the main line, power means for encircling a tree with a choker cable to choke the tree, and a tree clamp. To harvest a tree, the boom is positioned near the tree and the clamp is actuated to orient the shear and power means relative to the tree. The power means are then actuated to encircle the tree with the choker cable and the shear is actuated to feel the tree, whereupon the skidder may then move to another tree to repeat the same sequence. In this manner, a plurality of trees may be choked and felled in rapid succession.

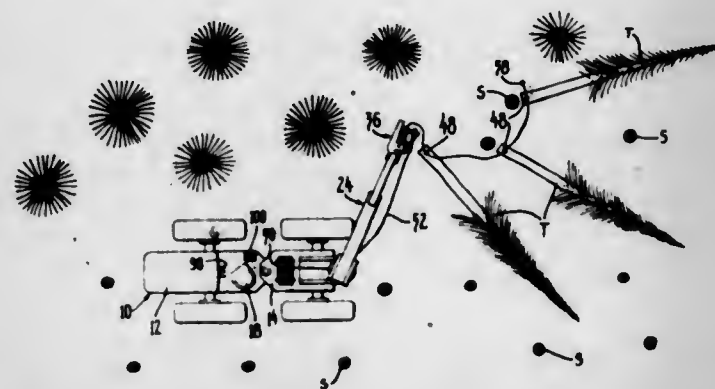
3,576,202 TREE-HARVESTING APPARATUS

David L. Spanjer, Willowdale, Ontario, Canada, assignor to Massey-Ferguson Services N.V., Curacao, Antilles, Netherlands

Filed Nov. 19, 1968, Ser. No. 777,003
Claims priority, application Canada, Dec. 4, 1967, 006,688
Int. Cl. A01g 23/02

U.S. Cl. 144-3

10 Claims



tom central aperture through which the top of a tree is to be inserted, a free-ended shaft mounted centrally of and within this body for rotation about a vertical axis in general alignment with the axis of the tree to be chipped, this body being formed with a stationary top part and a rotary bottom part secured to the shaft. A set of planetary rotary cutters are mounted at one end on the free end of the shaft and angularly thereof so as to be rotated by the shaft about the shaft axis. A journal is provided on the rotary bottom part and on the other end of the rotary cutters to allow rotation of the cutters about their own axis. The stationary top part is formed with a circular gear along the lower edge and the planetary cutters are provided with gears at one end to mesh with the circular gear.

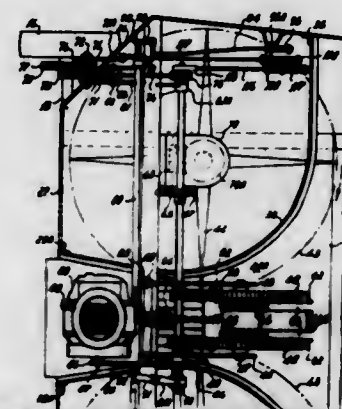
3,576,204 FODDER-LOOSENING IMPLEMENT

Cornelis Van Der Lely, 7, Bruschenrain, Zug, Switzerland
Filed Dec. 27, 1967, Ser. No. 693,825
Claims priority, application Netherlands, Jan. 11, 1967, 6,700,363

Int. Cl. A01f 29/00, 31/00

U.S. Cl. 146-70.1

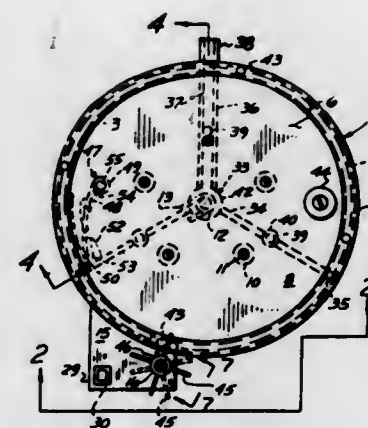
17 Claims



Filed May 12, 1969, Ser. No. 823,703
Int. Cl. B65h 75/00, 79/00

U.S. Cl. 137-355.26

5 Claims



An assembly comprising a reel rotatably received in a housing adapted to pass a hose inwardly and outwardly thereof to wind upon, and unwind from the reel, with a hose guide to guide the hose upon the reel in uniformly successive windings or coils, a restraint to yieldably resist dislodgment of said windings, and conduit means to maintain rigidity of the housing and conduct water to a hose.

3,576,197 DIVERTER SPOUT WITH PLASTIC PRESSURE CHAMBER

William R. Bastian, Belmont, Mich., assignor to Grand Rapids Die Casting Corporation, Grand Rapids, Mich.
Filed Jan. 15, 1970, Ser. No. 2,997

Int. Cl. F16k 31/44

U.S. Cl. 137-359

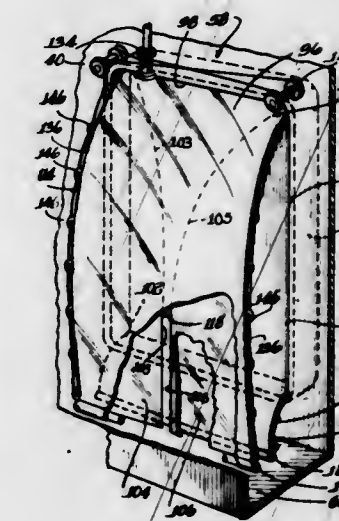
9 Claims

A spout for diverting the flow of fluid has a plastic pressure chamber which is inserted into the fluid input end of the

3,576,206
ISOLATION ENTRYWAY ASSEMBLY
Philip C. Trexler, Stoneham, Mass., assignor to Snyder Manufacturing Company, Inc., New Philadelphia, Ohio
Division of Ser. No. 639,669, Pat. No. 3,501,213, Filed June 13, 1969, Ser. No. 840,896
Int. Cl. E06b 03/94

U.S. Cl. 160-84

5 Claims



This invention relates to a novel method and means for enabling a person to leave an isolator room while preventing contaminants from entering the area or room. More particularly, this invention relates to an isolator structure having a sterile locker or anteroom with a pair of entrances which are sealed by troughs or reservoirs of fluid.

The valve member is provided with an elastomer seal and borne by a carriage allowing its translational motion during the valve-opening or closing movements. An insulating chamber provided within the valve case houses the valve member when the valve is open. A metal bellows is caused by pneumatic jacks to engage the valve member, when the valve is closed. In the open condition, said chamber ensures thermal insulation of the valve member and protects the seal thereof during heating at high temperature of the ultrahigh vacuum vessel components.

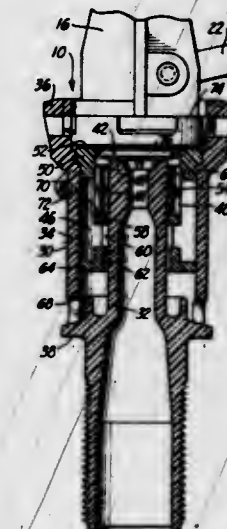
3,576,199 ANTICORROSION BALL COCK FLUID FLOW CONTROL ASSEMBLY

Adolf Schoepe, 1620 N. Raymond Ave., Fullerton, Calif., and Fredric E. Schmuck, 535 Century Drive, Anaheim, Calif.
Filed Mar. 28, 1969, Ser. No. 811,293

Int. Cl. E03d 1/32; F16k 31/34

U.S. Cl. 137-414

4 Claims



A molded plastic unitary water flow director forms a water outlet portion having a part of a valve lower housing portion

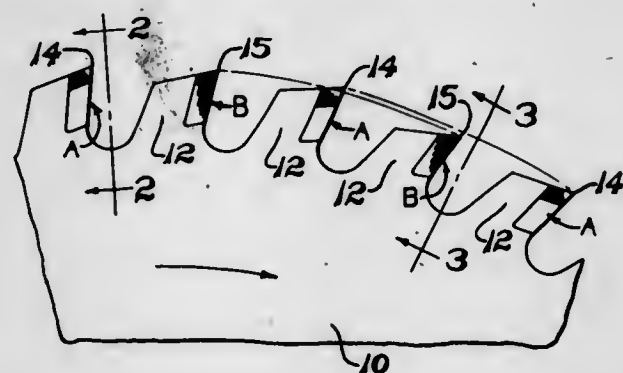
as an upward extension thereof and telescoping a water inlet portion extending centrally into the lower housing portion. A valve seat is formed at an end of the inlet portion and a water outlet chamber is formed between the inlet and outlet portions opening upwardly into the lower housing portion adjacent the valve seat. A separate plastic filtering member is inserted downwardly into the water chamber receiving water from over the valve seat into a filtering chamber thereof and filtering said water outwardly into said outlet chamber with a portion thereof passing directly outwardly through a refill hose nipple and the remainder passing circuitously downwardly through and outwardly of said water chamber into the interior of a water tank. An upper annular edge of the filtering member clamps an annular zone of a resilient sealing member within the valve formed by said lower housing portion and an enclosing upper housing portion, the sealing member within the housing portions being float controlled for movement and in turn controlling the flow of water over the valve seat.

3,576,200 CIRCULAR SAW

John A. Elmes, Canton, Ohio, assignor to Heinemann Saw Corporation, Canton, Ohio
Filed Feb. 26, 1969, Ser. No. 802,488
Int. Cl. B27b 33/08

U.S. Cl. 143-133

3 Claims



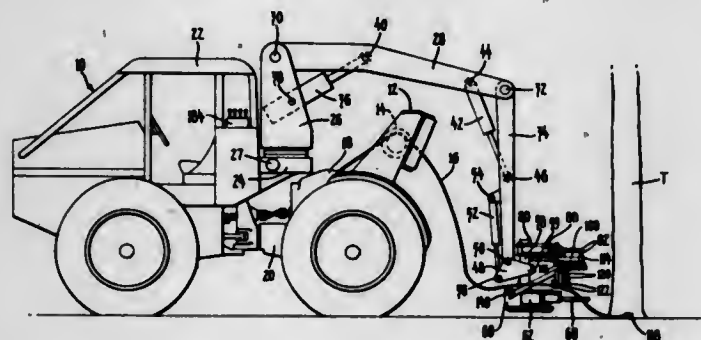
A circular cutter such as a saw has its teeth arranged in pairs each consisting of a leading tooth (A) and a trailing tooth (B) which cooperate to remove five separate and distinct chips when cutting a kerf through a workpiece. Leading tooth (A) removes a wide center chip and two narrower side chips, the latter forming the resulting cut faces of the workpiece. Trailing tooth (B) removes two chips flanking the center chip. The resulting cut faces of the workpiece are remarkably smooth and are burr free so that secondary finishing and polishing operations may be omitted when cutting common aluminum, brass, copper and similar nonferrous materials.

3,576,201 TREE-CHOKING APPARATUS

John G. Smith, Markham, Ontario, and David L. Spanjer, Willowdale, Ontario, Canada, assignors to Massey-Ferguson Inc., Des Moines, Iowa
Filed Apr. 21, 1969, Ser. No. 817,746
Int. Cl. A01g 23/02

U.S. Cl. 144-3

11 Claims



A log skidder having a winch, a main line and an arch is provided with a movable boom assembly which mounts a tree

shear at its end. Also mounted on the boom assembly is storage means for storing a plurality of choker cables which are attached to the main line, power means for encircling a tree with a choker cable to choke the tree, and a tree clamp. To harvest a tree, the boom is positioned near the tree and the clamp is actuated to orient the shear and power means relative to the tree. The power means are then actuated to encircle the tree with the choker cable and the shear is actuated to fell the tree, whereupon the skidder may then move to another tree to repeat the same sequence. In this manner, a plurality of trees may be choked and felled in rapid succession.

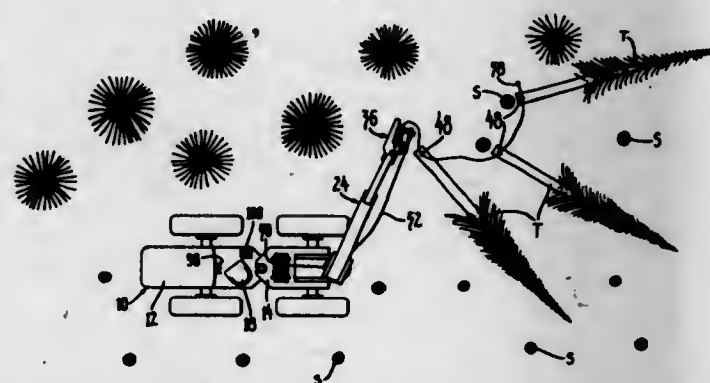
3,576,202 TREE-HARVESTING APPARATUS

David L. Spanjer, Willowdale, Ontario, Canada, assignor to Massey-Ferguson Services N.V., Curacao, Antilles, Netherlands

Filed Nov. 19, 1968, Ser. No. 777,003
Claims priority, application Canada, Dec. 4, 1967, 006,688
Int. Cl. A01g 23/02

U.S. Cl. 144-3

10 Claims



A log skidder is provided with an articulated boom structure which mounts a tree-felling power shear. The boom structure also carries a cable-attaching arrangement including the winch cable, a plurality of fasteners attached to the cable and means for attaching a fastener to a tree as it is felled by the shear. The skidder can move from tree to tree, until a full load is obtained, whereupon all the felled trees are winched into close proximity to the skidder for subsequent transporting without the operator leaving his seat.

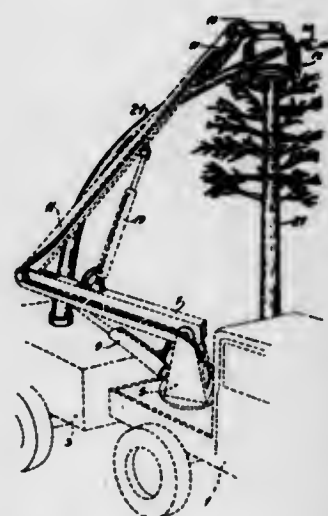
3,576,203 CHIP CONVERTER

Rene Cote, 201, de l'Eglise Street, Donnacona, Quebec, Canada

Filed Aug. 15, 1969, Ser. No. 850,575
Claims priority, application Canada, Dec. 6, 1968, 037,118
Int. Cl. A01g 23/02

U.S. Cl. 144-3

16 Claims



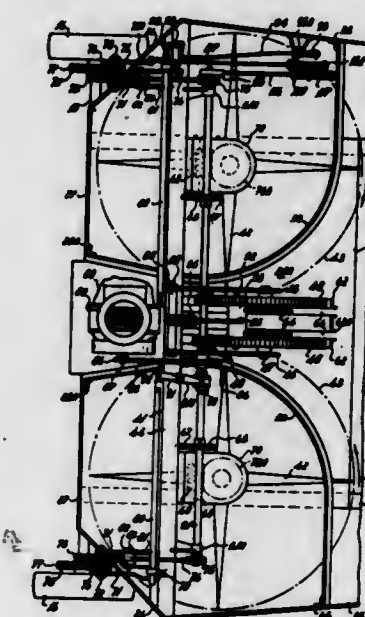
An apparatus for chipping an upright standing tree, from the top to the bottom, formed of a hollow body having a bot-

tom central aperture through which the top of a tree is to be inserted, a free-ended shaft mounted centrally of and within this body for rotation about a vertical axis in general alignment with the axis of the tree to be chipped, this body being formed with a stationary top part and a rotary bottom part secured to the shaft. A set of planetary rotary cutters are mounted at one end on the free end of the shaft and angularly thereof so as to be rotated by the shaft about the shaft axis. A journal is provided on the rotary bottom part and on the other end of the rotary cutters to allow rotation of the cutters about their own axis. The stationary top part is formed with a circular gear along the lower edge and the planetary cutters are provided with gears at one end to mesh with the circular gear.

3,576,204
FODDER-LOOSENING IMPLEMENT
Cornelis Van Der Lely, 7, Bruschenrain, Zug, Switzerland
Filed Dec. 27, 1967, Ser. No. 693,825
Claims priority, application Netherlands, Jan. 11, 1967, 6,700,363

Int. Cl. A01f 29/00, 31/00
U.S. Cl. 146-70.1

17 Claims

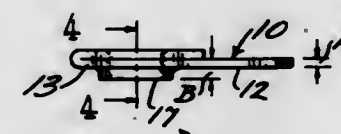


A fodder-loosening implement has a floor conveyor and rotatable gripping tines which move bales of crop from a conveyor to within a confining passageway. A second set of faster-moving tines operates from a second direction to tear bales apart while they are held in the passageway. A motor is connected to move the tines and to propel the implement.

3,576,205
WELDING NUT
Robert A. Reich, 1150 Eriewood Drive, Rocky River, Ohio
Filed June 30, 1969, Ser. No. 837,543
Int. Cl. F16b 37/06

U.S. Cl. 151-41.7

6 Claims

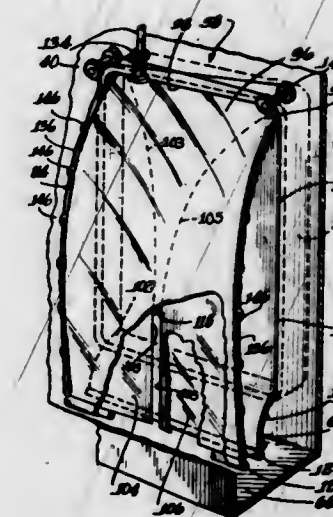


The present invention is a welding nut which is attached to a metallic surface by either spot welding or projection welding. The welding nut includes a nut end portion and a weld end portion of a predetermined thickness. The welding nut is constructed of a low-carbon steel and has a pilot projection which depends downwardly from the nut end portion at a distance at least equal to the predetermined thickness of the weld end portion. A bore extends through the nut end portion and the pilot projection. Internal threads are provided in the bore.

3,576,206
ISOLATION ENTRYWAY ASSEMBLY
Philip C. Trexler, Stoneham, Mass., assignor to Snyder Manufacturing Company, Inc., New Philadelphia, Ohio
Division of Ser. No. 639,669, Pat. No. 3,501,213, Filed June 13, 1969, Ser. No. 840,896
Int. Cl. E06b 03/94

U.S. Cl. 160-84

5 Claims

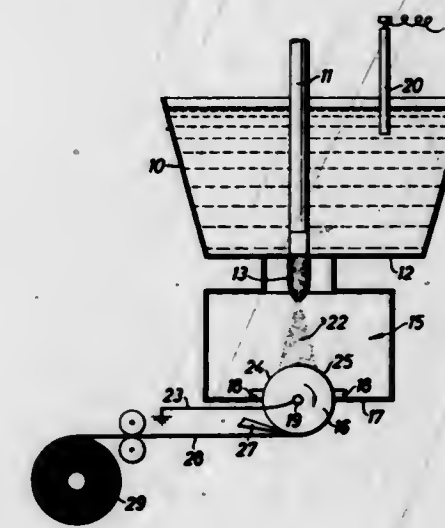


This invention relates to a novel method and means for enabling a person to leave an isolator room while preventing contaminants from entering the area or room. More particularly, this invention relates to an isolator structure having a sterile locker or anteroom with a pair of entrances which are sealed by troughs or reservoirs of fluid.

3,576,207
FORMATION OF STEEL STRIP
Hugh Willmott Grenfell, Morriston, Swansea, Glamorgan, Wales, assignor to The Steel Company of Wales Limited
Filed Apr. 22, 1969, Ser. No. 818,299
Claims priority, application Great Britain, Apr. 23, 1968, 3594/68
Int. Cl. B22d 27/02

U.S. Cl. 164-48

15 Claims



The present disclosure relates to a process for the continuous casting of metal strip, which process comprises imparting an electrostatic charge of at least 80,000 volts to a stream of molten metal, passing the stream of metal through a nozzle into an inert atmosphere and allowing the stream leaving the nozzle to atomize to a fine spray, collecting the spray droplets on a cool receiving surface to form a layer of metal on said surface and continuously stripping the layer of metal from said surface.

3,576,208

GAS TURBINE HEAT EXCHANGER AND METHOD OF MAKING

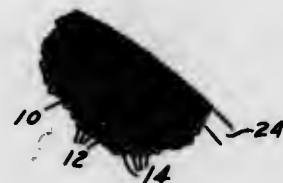
Donald J. Cassidy, Plymouth, Mich., assignor to Ford Motor Company, Dearborn, Mich.

Filed Sept. 2, 1969, Ser. No. 854,399

Int. Cl. F28d 19/00

U.S. Cl. 165-9

7 Claims



A solid lubricant for the contact surfaces between a rotating ceramic regenerator and the stationary peripheral seal is forced into the openings of the gas flow passages that will bear on the seal. The lubricant adheres to the walls forming the gas flow passages and is exposed to the bearing surfaces as the walls wear. Zinc oxide can be used as the lubricant which can be applied by preparing an aqueous base putty, forcing the putty into the passages, and heating the putty to cure the lubricating material in place.

3,576,209

END CAPS FOR CALENDER ROLLS AND THE LIKE IN PAPER MAKING MACHINERY

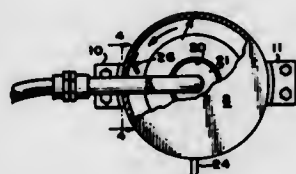
Alfred J. Coulombe, 503 N. Morton St., Newberg, Oreg. 97132

Filed Apr. 10, 1969, Ser. No. 815,020

Int. Cl. F28b 17/00

U.S. Cl. 165-89

2 Claims



A closure cap for the normally open ends of hollow shafts of calendar rolls used in paper-making machinery wherein one or more of the rolls is maintained at proper working temperature by partaking of the temperature of steam supplied to the interior of the hollow shaft of the roll. Closure caps made in accordance with this invention and attached to both ends of a calendar roll housing meet certain State safety regulations which require that protruding ends of any rotating roll or shaft be covered by or enclosed within a stationary housing or the like to prevent a person from unintentional or accidental contact with the rotating roll or shaft. The caps also enhance the appearance of the machine and prevent uncontrolled escapement of steam condensate into hazardous slippery accumulation on the floor area surrounding the machine.

3,576,210
HEAT PIPE

Donald S. Trent, Corvallis, Oreg.

Filed Dec. 15, 1969, Ser. No. 884,852

Int. Cl. F28d 15/00

U.S. Cl. 165-105

1 Claim

A heat pipe incorporates a novel wick including a single row of small-diameter rods disposed about the periphery of the heat pipe, each of the rods being wrapped in a spiral

spacer wire, a cylindrical fine mesh screen located just inside the single row of rods, and a coarse support screen located



just inside the fine mesh screen. A conventional working fluid such as sodium is employed in the heat pipe.

3,576,211

METHOD FOR PLACING CEMENT AROUND CASING

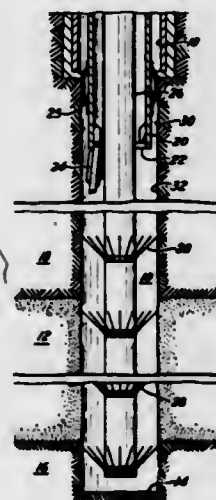
Robert J. Goodwin, Oakmont, Pa., assignor to Gulf Research & Development Company, Pittsburgh, Pa.

Filed Nov. 26, 1969, Ser. No. 880,060

Int. Cl. E21b 33/14

U.S. Cl. 166-290

8 Claims



Casing to be set in a well is lowered to a position just above the interval of the well in which cementing is critical. Small diameter tubing having scratchers mounted on its outer surface is lowered through the casing and reciprocated vigorously while circulating liquid to remove soft filter cake and cuttings from the borehole wall through the critical area. A cement slurry is pumped down the tubing to puddle cement slurry in the bottom of the borehole. The casing is then lowered into the puddled cement slurry. A float valve on the lower end of the casing causes the cement slurry to be displaced up into the annulus surrounding the casing.

3,576,212

FIRE-SHIELDING DEVICE

James H. Siler, Star Route A, Box 259, Hobbs, N. Mex. 88240

Filed Mar. 10, 1969, Ser. No. 805,731

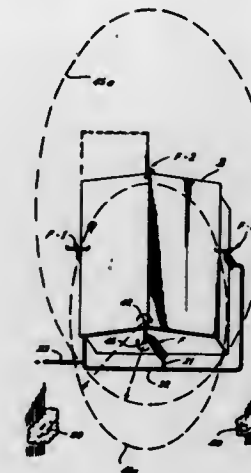
Int. Cl. A62c 35/22

U.S. Cl. 169-2

10 Claims

A fire-shielding device adapted to be disposed adjacent a

building for creating a water shield over the roof of the building and in an area adjacent the building which may be ex-



posed to fire from an adjacent forest, building or other source.

3,576,213

FARM IMPLEMENT

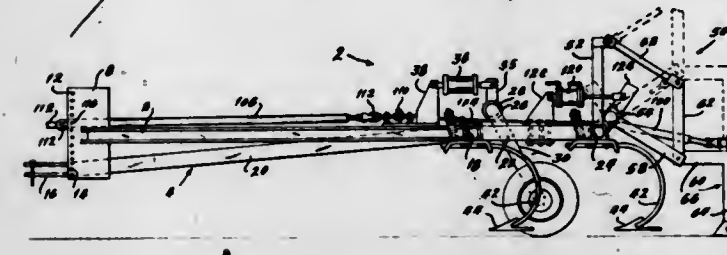
David B. Hall, Newburg, N. Dak. 58762

Filed Mar. 12, 1969, Ser. No. 806,356

Int. Cl. A01b 39/19, 63/00

U.S. Cl. 172-44

5 Claims



A farm implement having a frame which carries a cultivator and a rod weeder assembly, the latter including a weeder rod which is drawn through the soil loosened by the former. The height of the cultivator relative to the ground is variable, while the height of the weeder rod is variable relative to the cultivator. Consequently, the cultivator may be used independently of the rod weeder assembly.

3,576,214

COLLAPSIBLE TRAIL LEVELER

John M. Ratcliffe, 51 Molyas Road, Wayne, N.J.

Filed July 15, 1969, Ser. No. 841,934

Int. Cl. E02f 3/12; B62b 13/16; E01h 5/00

U.S. Cl. 172-393

9 Claims



A trailer-type snowmobile trail-smoothing device is described, including a pair of coextensive, elongated runners held in spaced, parallel relation by a plurality of pivotally journaled scraper mechanisms having vertically adjustable scraper blades. The scraper mechanisms, together with the runners, constitute a parallel guide mechanism permitting longitudinal collapsing of the runners into substantially abutting relation. The runners are of channel shape with op-

posed recesses defining a chamber for the reception of portions of the scraper mechanisms when the runners are in collapsed condition; and the runners are so hingedly jointed along their lengths, and so provided with appropriate separable joints, as to permit folding of the collapsed runners into stacked runner sections for easy transport and storage when the device is not in use.

3,576,215

SCRAPER BLADE APPARATUS

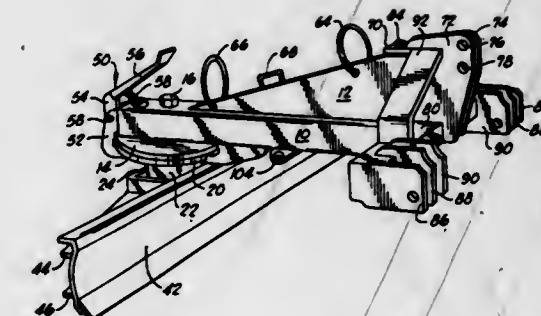
Ted L. Cline, P.O. Box 38, Rush Springs, Okla. 73082

Filed Feb. 4, 1969, Ser. No. 796,510

Int. Cl. A01b 59/06, 65/02

U.S. Cl. 172-447

3 Claims



A scraper blade apparatus including an elongated blade member of concavo-convex cross-sectional configuration connected to one end of an elongated, horizontally extending supporting beam. The structure used to interconnect the blade member to the supporting beam permits the blade member to be pivoted about a vertical axis, and also about a horizontal axis so that the blade member can be adjusted in its angular relationship to the longitudinal axis of the elongated supporting beam and also canted or angled with respect to the ground. The supporting beam is pivotally secured at its end opposite that end which carries the blade member to a horizontally extending transverse mounting beam which has a plurality of mounting brackets adapted for connecting the mounting beam to a self-powered towing or carrying vehicle.

3,576,216

SPRING MOUNTING FOR DISC HARROW BLADES

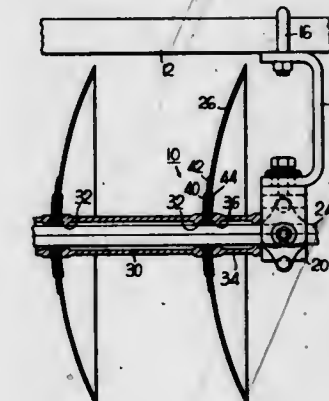
Willard H. Tanke, La Crosse, Wis., assignor to Allis-Chalmers Manufacturing Company, Milwaukee, Wis.

Filed Mar. 21, 1969, Ser. No. 809,176

Int. Cl. A01b 21/08, 23/06

U.S. Cl. 172-570

5 Claims



Apparatus for minimizing damage to discs in a disc harrow implement by providing supports for the discs in the nature of multileaf springs so that upon contacting an obstruction the outer portion of the disc will flex adjacent the edge of the

outer spring leaf and if the load to which the disc is being subjected is even greater then the disc will also flex about the edge of the next spring leaf closer to the center of the disc and the load is heavy enough the disc will also flex about the outer periphery of the spacers at which point the disc is mounted substantially rigid, and some deflection may take place in the standard supporting the discs and their gang bolt.

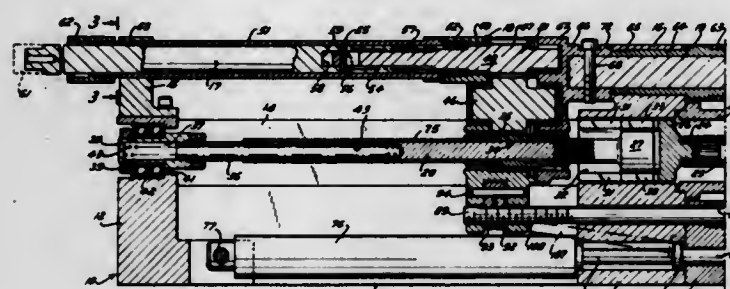
3,576,217

AIR FEED NUT RUNNER HAVING A TRAVELLING GEAR CASE

Raymond J. Schaedler, Utica, N.Y., assignor to Chicago Pneumatic Tool Company, New York, N.Y.
Filed Mar. 4, 1969, Ser. No. 804,192
Int. Cl. B25b 23/00

U.S. Cl. 173-19

10 Claims



A nut-running tool having a work spindle arranged in a supporting base so as to be advanced by a pneumatically powered piston into engagement with a threaded fastener. As the spindle advances, it is also rotated so as to drive the fastener into the work by means of an air-driven motor acting through a travelling gear train structure. A check cylinder is automatically operable at a predetermined time during the advance of the spindle so as to dampen the advancing speed of the spindle and thereby prevent the latter from ramming into the fastener. A spring-cushioned pin and slot connection between the gear train structure and the spindle permits the gear train structure to advance briefly relative to the spindle when the latter seats upon the fastener. This relative movement stops prior to the time that the fastener is driven into the work. A limit switch is arranged to automatically signal a control circuit when the spindle has completed its advance stroke. The time of operation of the switch may be adjusted. The control circuit responds to the signal to shut off air feed to the piston and motor. A spring responds to the latter action to retract the piston to its normal start position. A second limit switch is arranged to automatically signal the control circuit when the spindle has completed its retract stroke. The control circuit responds to the latter signal to recondition the circuit for the next cycle of operation.

3,576,218

COMBINED EARTH BORING AND POST DRIVING APPARATUS

Edgar J. Lisenby, Los Angeles, Calif. (13136½ Saticoy St., North Hollywood, Calif., 91605)
Filed July 28, 1969, Ser. No. 845,299
Int. Cl. E21c 11/02

U.S. Cl. 173-28

9 Claims

The earth boring and post driving apparatus disclosed herein is carried on a trunk bed and includes an upright frame laterally cantilevered therefrom for selectively supporting an earth auger and a post driver in such a manner that either may be employed independent of each other or combined during an earth boring procedure to assist the auger in biting into the earth. Hydraulic cylinder and piston assemblies are employed to move the earth auger and post driving mechanism into and out of operating position and to maneuver the upright frame into various angular orientations

so that the apparatus can function on slopes or uneven terrain. The frame is universally mounted on the trunk bed by a



turntable mount and by a pivoting arrangement so that maneuvering of the frame can be readily achieved.

3,576,219

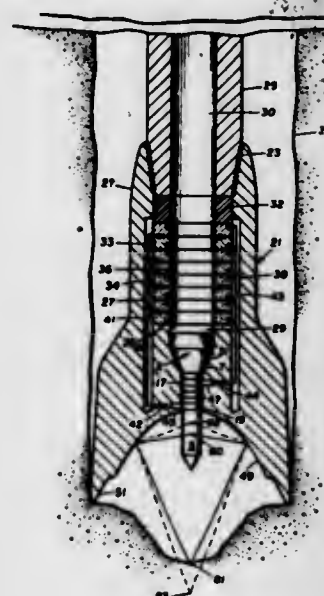
METHOD AND APPARATUS FOR EXPLOSIVE DRILLING UTILIZING SPARK PUMPS FOR DETONATING EXPLOSIVES

Frank A. Angona, Dallas, Tex., assignor to Mobil Oil Corporation

Filed Sept. 8, 1969, Ser. No. 855,877
Int. Cl. E21b 7/00; E21c 19/00

U.S. Cl. 175-4.5

10 Claims



This specification discloses combination rotary and explosive drilling methods and apparatus for drilling wellbores. Explosive charges are pumped down a drill pipe along with circulating drilling fluid and seated in a seat within a drilling tool located at the lower end of the drill pipe. The explosive charges are then detonated by means of a spark pump. The lower portion of the drilling tool is shaped as a reflector or concentrator which functions to concentrate the energy of the explosion to fragment earth formations below the drilling tool. The drill pipe is rotated, thereby rotating cutting means attached to the lower portion of the drilling tool which also fragments the earth formations below the drilling tool and

keeps the wellbore in gauge. Circulating drilling fluid removes the fragmented earth formations to the surface.

on the lower end of the drill string whereby the drill bit rotates independently of the drill string as a result of the

3,576,220

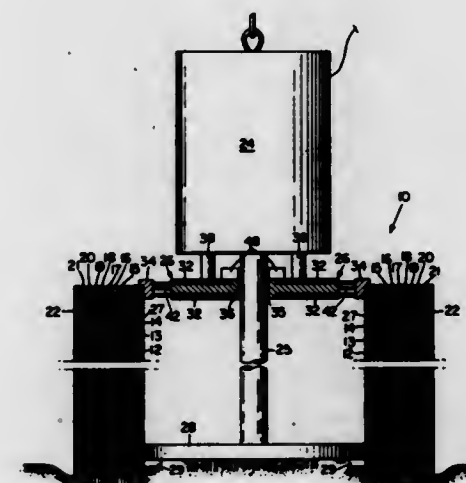
TELESCOPING SEA FLOOR SOIL SAMPLER

Henry L. Gill, Ojai, Calif., assignor to the United States of America as represented by the Secretary of the Navy.

Filed Apr. 1, 1969, Ser. No. 813,403
Int. Cl. E21b 7/12, 49/02; G01n 1/02

U.S. Cl. 175-6

12 Claims



A deep-penetrating ocean bottom soil sampler employing a plurality of telescoping tubes that may be sequentially driven downwardly to penetrate the ocean floor a distance equal to approximately one-half of the cumulative length of the tubes. As the sampler with extended tubes is withdrawn, it extracts an elongate core comprising a representative ocean bottom soil sample.



reaction from streams of drilling liquid discharged at high velocities from the nozzles.

3,576,223

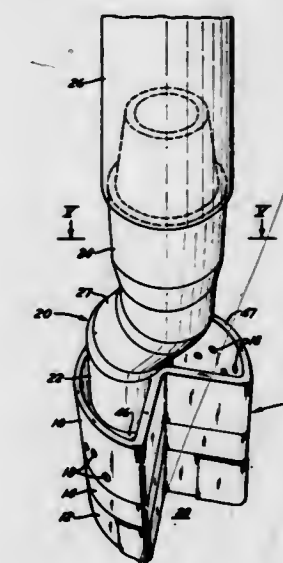
JET DRILLING FISHING BIT

Horst H. Hasiba, Pittsburgh, Pa., assignor to Gulf Research & Development Company, Pittsburgh, Pa.

Filed Oct. 8, 1969, Ser. No. 864,590
Int. Cl. E21b 7/18

U.S. Cl. 175-312

8 Claims



3,576,221 HIGH-DENSITY DRILLING LIQUID FOR HYDRAULIC JET DRILLING

Horst H. Hasiba, Pittsburgh, Pa., assignor to Gulf Research & Development Company, Pittsburgh, Pa.

Filed July 25, 1969, Ser. No. 845,065
Int. Cl. E21b 7/18

U.S. Cl. 175-66

5 Claims

The density of drilling liquid used in hydraulic jet drilling of hard formations subjected to abnormal pressures of fluids in the formation is controlled by incorporating in the drilling liquid solid ferrous particles having a size in the range of 20 to 50 mesh in the U.S. Sieve Series in a concentration of at least about seven percent by volume to increase the density of the drilling liquid to the desired density above 11 pounds per gallon. Data are presented to show that increasing the density of the drilling liquid with the ferrous particles having a size in the range of 20 to 50 mesh increases the drilling rate whereas increasing the density of the drilling liquid with conventional weighting agents decreases the drilling rate.

3,576,222

HYDRAULIC JET DRILL BIT

Willard P. Acheson; Gerald H. F. Gardner, Pittsburgh; Joseph H. Messner, O'Hara Township, Allegheny County, and Michael A. Torcaso, Arnold, Pa., assignors to Gulf Research & Development Company, Pittsburgh, Pa.

Filed Apr. 1, 1969, Ser. No. 811,820
Int. Cl. E21b 7/18, 43/114

U.S. Cl. 175-67

5 Claims

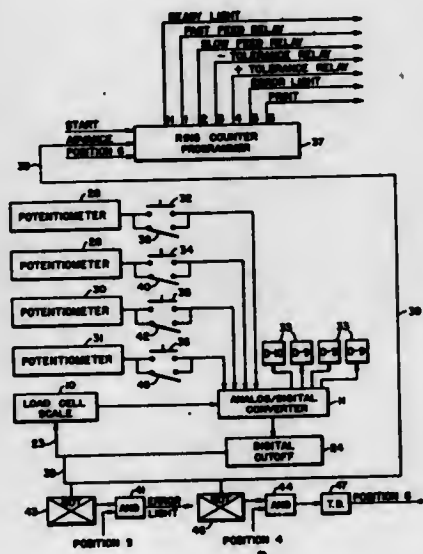
A drill bit for the drilling of wells by the hydraulic jet-drilling method in which a plurality of nozzles slope downwardly through the lower end of the drill bit in a direction having a component opposite the desired direction of rotation of the drill bit. The drill bit is rotatably mounted

A hydraulic jet drill bit has a single large flute extending the full length of the bit. A junk basket open at its top is mounted on the top of the drill bit. The junk basket has the same shape in plan view as the drill bit to provide a continuation of the flute through the junk basket. An adapter of small diameter extends upward through and above the junk basket for connection to drill pipe. When recovering junk from the hole, junk is washed into the flute by circulating drilling liquid while the bit is held just off bottom. After circulating for a short time, the bit is lowered onto the bottom while circulation of drilling liquid continues to drill the hole and thereby indicate recovery of the junk.

3,576,224
WEIGHING SYSTEM WITH ANALOG INPUT SIGNALS AND DIGITAL CUTOFF SIGNALS
 William C. Susor, Toledo, Ohio, assignor to The Reliance Electric and Engineering Company, Toledo, Ohio
 Filed Dec. 16, 1968, Ser. No. 783,969
 Int. Cl. G01g 23/18

U.S. Cl. 177-47

4 Claims



A digital cutoff system comprising a weighing scale, means for electing a desired weight, signal means for producing preset digital signals and additional digital signals in accordance with load upon the scale, and means for detecting coincidence between the combined digital signals and the desired weight. Desired preset weight in accordance with dribble cutoff, final cutoff and over and under tolerance detection is accomplished by varying the signal means.

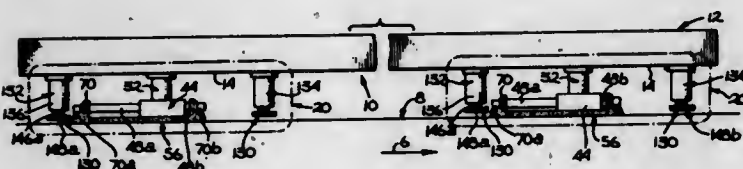
3,576,225
APPARATUS FOR MOVING MULTI-TON OBJECTS
 Henry B. Chambers, Santa Barbara, Calif., assignor to Hydraulautics

Filed Jan. 15, 1969, Ser. No. 791,246

Int. Cl. B62d 57/02

U.S. Cl. 180-8

10 Claims



A module and system for use in connection with the moving of multi-ton objects over a ground surface containing no rails. The modular concept permits moving heavy loads which are dimensionally large and which are not rigid enough to be supported at a few points. It also enables objects which vary in size and shape to be moved.

3,576,226
COMPENSATING LINKAGE FOR CRAWLER TRACTORS
 Kermik L. Copeland, Bellevue, Ill., assignor to Caterpillar Tractor Co., Peoria, Ill.

Filed Mar. 10, 1969, Ser. No. 805,459

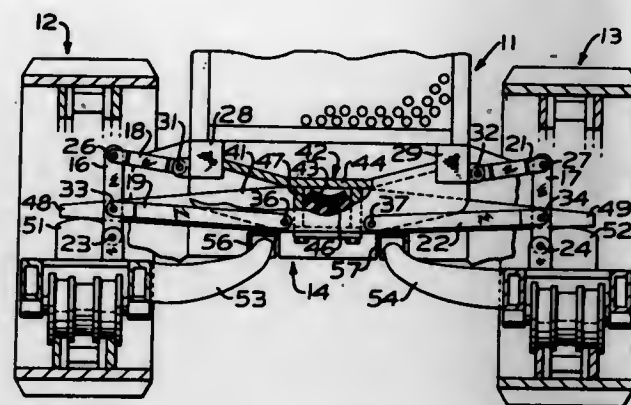
Int. Cl. B62d 55/10

U.S. Cl. 180-9.5

6 Claims

Compensating linkage in a crawler tractor having a main frame with track roller frames pivoted at one end thereof comprising a lever pivoted to the free end of each roller

frame and two links pivotally interconnecting each lever with the main frame, the linkage to provide for relatively constant



lateral and longitudinal alignment of the roller frames during oscillation of the roller frames relative to the main frame.

3,576,227
ATTACHMENT DEVICE FOR AN AGRICULTURAL MACHINE

Wilhelm Konrad Lippl, Odenbrunn, and Franz Xaver Lenzer, Kleinkötz Kreis Gunzburg, Germany, assignors to Karl Mengele & Sohne, Gunzburg, Germany

Filed Dec. 18, 1968, Ser. No. 784,707

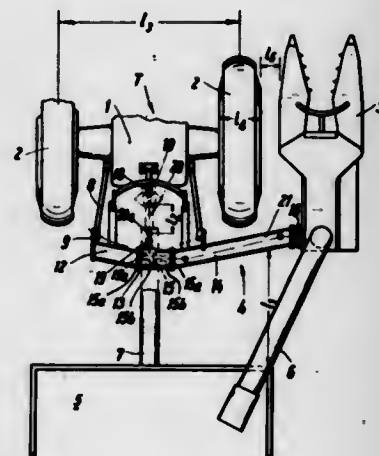
Claims priority, application Germany, Dec. 21, 1967, Jan. 26, 1968, Jan. 27, 1968, Feb. 1, 1968, Aug. 10, 1968, P1582372.0; P1632777.8; P1632820.

4; P1632778.9; P1782299.0

Int. Cl. B62d 59/02

U.S. Cl. 180-14

15 Claims



A transversely arranged carrier arm is attached to the rear of a prime mover for securing an agricultural implement alongside the prime mover. The carrier arm is formed of a plurality of hollow members which support power transmission means extending from the prime mover to the agricultural implement. The length of the carrier arm and of the power transmission means is adjustable. The multiple section carrier arm is formed in a somewhat curved configuration.

3,576,228
STEERING SYSTEM FOR LAND VEHICLES
 John T. Kassehmann, Southfield, Mich., assignor to The Bendix Corporation

Filed Jan. 16, 1969, Ser. No. 792,238

Int. Cl. B62d 5/08

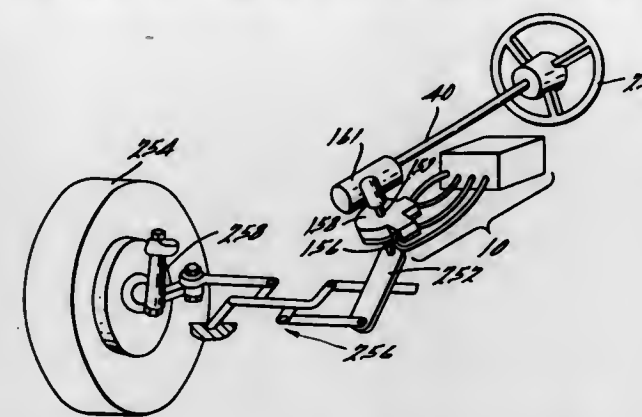
U.S. Cl. 180-79.2

24 Claims

A fluidic steering system for automobiles and the like to automatically compensate for lateral disturbances having a fluid rate sensor for providing a sensor signal representative of course deviations, a fluidic circuit for providing a generated signal in response to driver steering commands which is representative of expected course deviations due to

the steering commands, and a fluidic circuit to sum the sensor and generated signals thereby providing a net signal

steering corrections to compensate for lateral disturbances such as wind gusts and road irregularities.



which is representative of the automatic steering control necessary to maintain the vehicle on a desired course.

3,576,229
FLUIDIC AUTOMOBILE STEERING SYSTEM WHICH AUTOMATICALLY COMPENSATES FOR WIND GUSTS AND THE LIKE

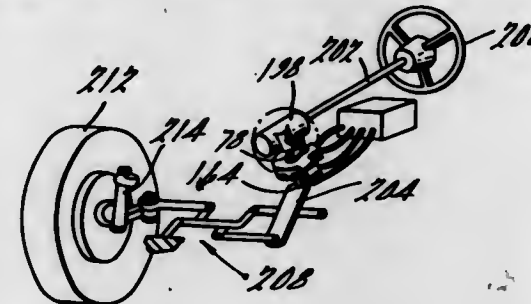
Jerome G. Rivard, Birmingham, Mich., assignor to The Bendix Corporation

Filed Jan. 16, 1969, Ser. No. 792,243

Int. Cl. B62d 5/08

U.S. Cl. 180-79.2

26 Claims



An automobile steering system having a fluidic rate sensor, a fluidic amplifier, and a closed loop fluid operated actuator to provide steering corrections to compensate for lateral disturbances such as wind gusts and road irregularities. The steering system of this invention further includes an apparatus responsive to the rate of change of driver commands for providing a signal to cancel rate sensor output signals due to course deviations induced by driver commands having high rates of change.

3,576,230
FLUIDIC AUTOMOBILE STEERING SYSTEM WHICH AUTOMATICALLY COMPENSATES FOR WIND GUSTS AND THE LIKE

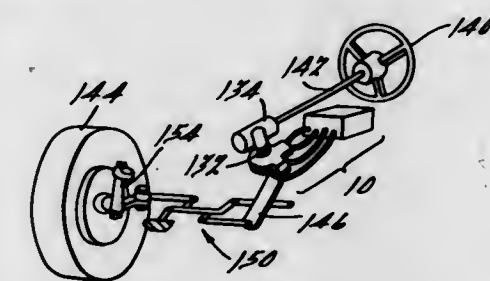
Lael B. Taplin, Livonia, and Jerome G. Rivard, Birmingham, Mich., assignors to The Bendix Corporation

Filed Jan. 15, 1969, Ser. No. 792,904

Int. Cl. B62d 5/06

U.S. Cl. 180-79.2

21 Claims



An automobile steering system having a fluidic rate sensor, a fluidic amplifier and a fluid operated actuator to provide

3,576,231
INFLATABLE AIR PAD WITH EASILY REMOVABLE DIAPHRAGM

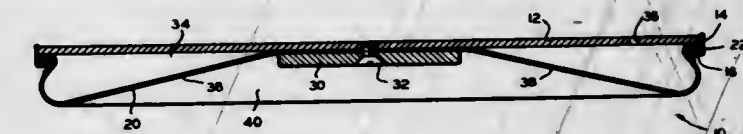
Richard R. Jung, Battle Creek, Mich., assignor to Clark Equipment Company

Filed Sept. 12, 1969, Ser. No. 857,400

Int. Cl. B60v 1/16

U.S. Cl. 180-124

2 Claims



An air pad with an easily removable diaphragm. The diaphragm has a bead around the periphery adapted to be disposed in a recess formed by an L-shaped flange and held in place by a snap ring.

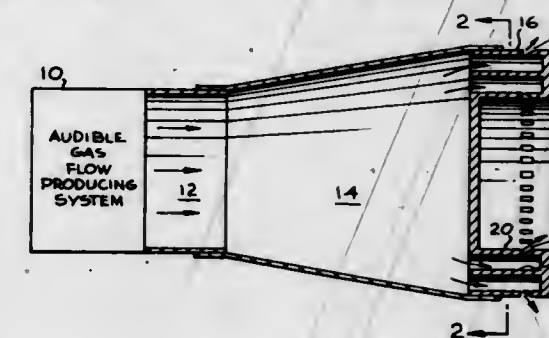
3,576,232
ULTRASONIC SILENCER
 Herbert A. Lebert, 8 Corte Dorado, Millbrae, Calif.

Filed Sept. 29, 1969, Ser. No. 861,656

Int. Cl. F01n 1/00, 1/02

U.S. Cl. 181-33F

8 Claims



A moving stream of gas such as is produced as the exhaust of an internal combustion engine, has audible frequencies which are abated, in accordance with this invention, by interacting with apparatus which converts the audible frequency in the moving stream of gas to inaudible frequencies.

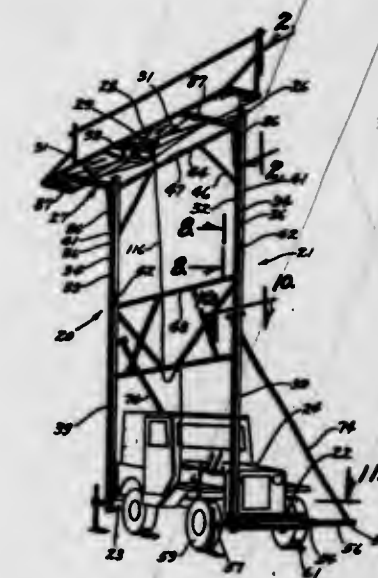
3,576,233
SCAFFOLD STRUCTURE
 Chester J. Thatcher, 225 W. Hanover St., Holstein, Iowa

Filed Aug. 6, 1969, Ser. No. 847,895

Int. Cl. E04g 1/18

U.S. Cl. 182-63

4 Claims



A scaffold structure includes a frame having a pair of upright tubular track members arranged along one side of a

vehicle in a longitudinally spaced relation. Each track member adjustably carries a vertically movable carriage member. Horizontal arms on the carriage members extend laterally outwardly from the one side of the vehicle and support a horizontal work platform. The tracks are adjustably mounted on the vehicle for movement transversely thereof to provide for a lateral adjustment of the platform relative to the vehicle. The carriage members are vertically movable by a motor and winch assembly supported from the underside of the platform and interconnected by cables with the carriage members. Power to the motor is supplied from the vehicle battery.

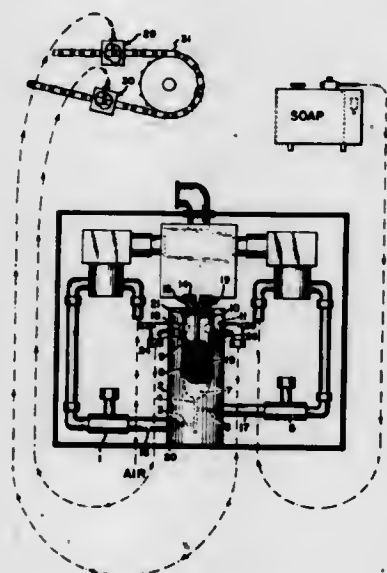
3,576,234

METHOD AND APPARATUS FOR LUBRICATING CONVEYOR SYSTEMS AND THE LIKE

Robert L. Batchelor, 412 Beach Road, Venice, Fla. 33595
Filed July 9, 1969, Ser. No. 840,259
Claims priority, application Australia, July 22, 1968, 41024/68
Int. Cl. F16n 7/24

U.S. Cl. 184-15R

6 Claims



A system is disclosed for lubricating conveyor chains utilizing foamed lubricant in the form of liquid soap. The foam is formed by feeding controlled streams of air and liquid lubricant to the bottom of a bead chamber so as to create small bubbles. The foam is then passed through a restriction to an expansion chamber where the bubbles are enlarged. The finished foam is then delivered to various stations in contact with the conveyor chains. The system permits careful control with respect to the aeration, i.e., the amount of foam.

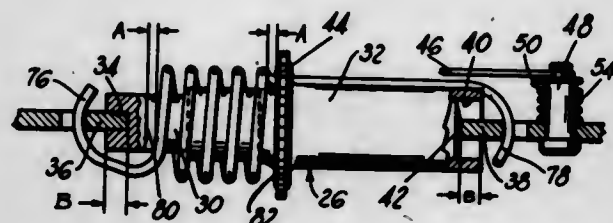
3,576,235

BRAKE ADJUSTING SCREW LOCK

Daniel L. Bolenbaugh, South Bend, Ind., assignor to The Bendix Corporation
Filed July 3, 1969, Ser. No. 838,967
Int. Cl. F16d 65/56

U.S. Cl. 188-79.5

5 Claims



An adjusting device interposed between the adjacent ends of a pair of brake shoes so as to increase the distance therebetween to compensate for shoe wear, including a coil spring connecting the adjacent shoe ends to the adjusting

device to prevent excessive separation of said shoe ends. The coil spring circumscribes the adjusting device, the convolutions of the spring being spaced from abutments on the adjuster.

3,576,236

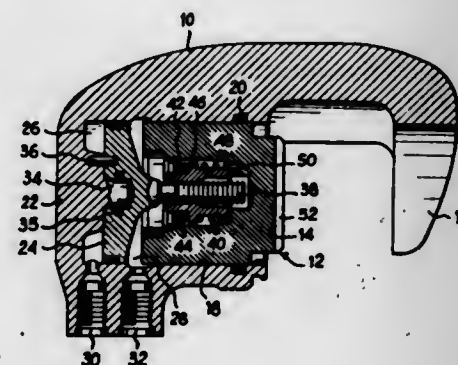
TANDEM HYDRAULIC BRAKE ACTUATOR

Bernard Laverdant, Vincennes, France, assignor to Societe Anonyme D.B.A.

Filed Feb. 28, 1969, Ser. No. 803,153
Claims priority, application France, Mar. 6, 1968, 142,612
Int. Cl. B60t 11/10

U.S. Cl. 188-152

6 Claims



A tandem hydraulic brake actuator having in a bore a brake actuating piston responsive to a first hydraulic control pressure, a floating piston responsive to the pressure differential between said first and second control pressures so as to move said control piston in a brake-applying direction in the event of a failure in said first control pressure, a slack adjuster operatively provided between said pistons and means operative to prevent actuation of said floating piston as long as the pressure differential acting thereon is below a predetermined value.

3,576,237

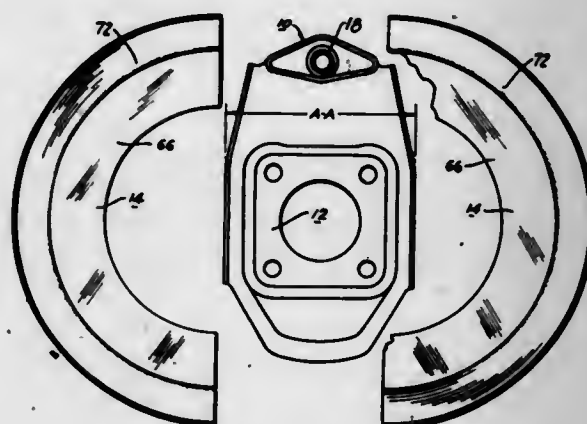
BRAKE-BACKING PLATE

Robert J. Dubuc, South Bend, Ind., assignor to The Bendix Corporation

Filed Feb. 17, 1969, Ser. No. 799,821
Int. Cl. F16d 65/02

U.S. Cl. 188-206

3 Claims



This invention relates to a brake-backing plate which is comprised of an inner member and an outer member. The inner member, which is oblong in shape and includes an integral anchor boss, is rigidly secured to said outer member which is comprised of allochiral portions.

3,576,238

CARRYING CASE LATCH STRUCTURE

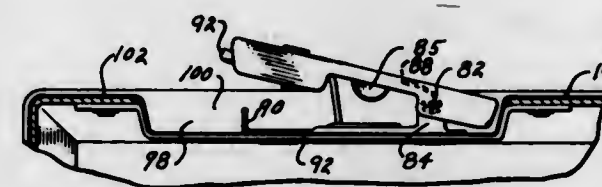
Wingfield L. Chubb, Beverly Shores, Ind. 46301

Filed Jan. 14, 1969, Ser. No. 791,059

Int. Cl. E05b 65/52

U.S. Cl. 190-49

9 Claims



A carrying case having two spaced latches recessed in a frame member. The operating member of the latch is disposed in a recess where it will not accidentally be operated, but it can easily be operated by inserting a finger in the recess. The upper surface of the latch mechanism is on a plane substantially the same as the plane of the surrounding case surface when the case is in its locked condition.

3,576,239

ACCELERATOR LINKAGE LOCK

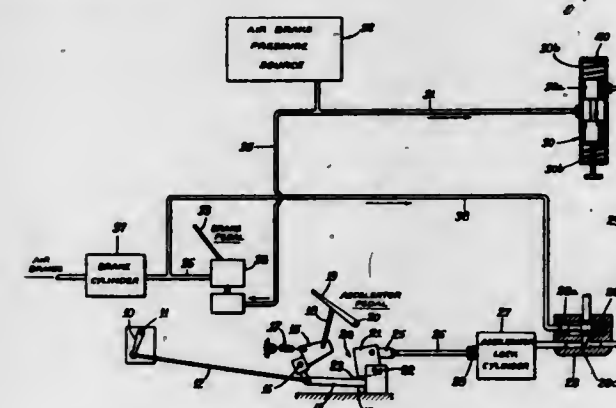
Ralph S. Hajek, Villa Park; Ray W. Harrow, and Edward D. Duke, Chicago, Ill., assignors to International Harvester Company, Chicago, Ill.

Filed Dec. 8, 1969, Ser. No. 882,981

Int. Cl. F16d 67/00; F02d 11/00

U.S. Cl. 192-3

12 Claims



Holding and release lock for an accelerator pedal. A holding device for the accelerator pedal is applied by air under pressure admitted through a manual valve from a pressure source otherwise used to operate a fluid motor for a brake. When the brake is applied, the holding device is released in response to the flow of air from the source to the fluid motor causing the brake to be applied.

3,576,240

CONTROL LEVER LOCKING DEVICE

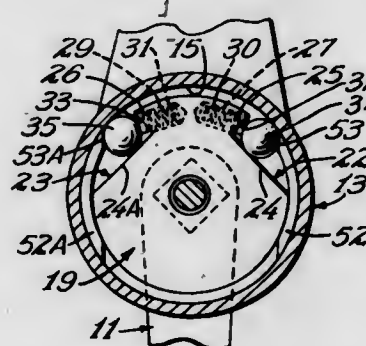
John A. Nicholson, 1650 Carroll Ave., St. Paul, Minn. 55104

Filed July 25, 1969, Ser. No. 844,980

Int. Cl. F16d 67/02, 41/07

U.S. Cl. 192-16

3 Claims



A control lever is pivotally supported for movement through 360°, and to cause corresponding pivotal movement

of an arm connected by suitable linkage to a member to be controlled, such as an engine throttle. While the control lever is readily pivotal, any force on the arm tending to rotate it in either direction will lock the arm from rotation.

3,576,241

HYDRAULIC CONTROL DEVICES OF TRANSMISSION MECHANISMS

Jean Maurice, and Jean Piret, Billancourt, France, assignors to Regie Nationale Des Usines Renault, Billancourt, France and Automobiles Peugeot, Paris, France

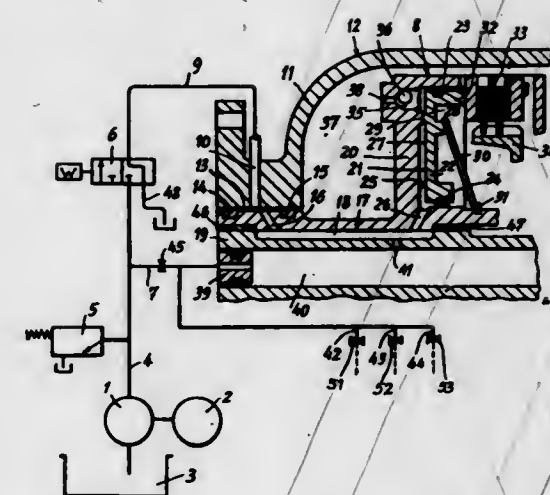
Filed Dec. 24, 1968, Ser. No. 786,653

Claims priority, application France, Jan. 5, 1968, 135,057

Int. Cl. F16d 43/00

U.S. Cl. 192-85

8 Claims



This device comprises an annular actuator chamber disposed between the inner face of a bell-shaped member rigid with a hollow shaft and the registering face of an annular change-speed control piston slidably fitted in said bell-shaped member and urged towards the face thereof by a return spring. Said chamber communicates through a passage formed in said shaft with a duct formed through the wall of the transmission case and, through a valve, with the inner space of said transmission case. This duct is connected through a control distributor to the pressure oil lubrication system communicating directly with said passage. A shutter responsive to said piston is so arranged in said chamber that in the inoperative piston position said shutter will regulate the oil pressure to maintain a slight pressure within the actuator in order to reduce its response time.

3,576,242

BRAKING ROLLER

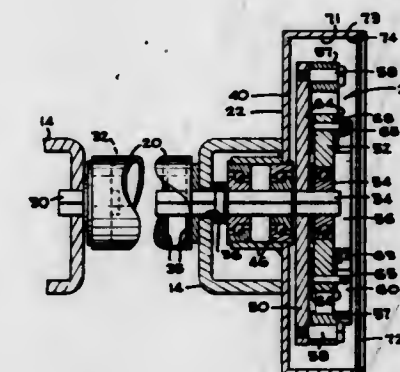
Harold J. Mumma, Riverside, Calif., assignor to FMC Corporation, San Jose, Calif.

Filed Jan. 8, 1969, Ser. No. 789,769

Int. Cl. B65g 13/075; B60t 8/04

U.S. Cl. 193-35

11 Claims



A gravity roller conveyor includes at spaced intervals special braking rollers which have stationary brake drum attachments adjacent to one of their ends. A pair of brake

below the test station is withdrawn to permit the coin to enter an accept path.

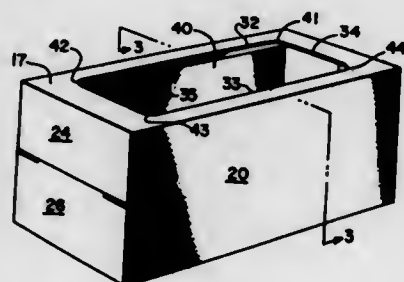
COIN SORTER CRADLE LOCK

U.S. CL. 194-102

4 Claims

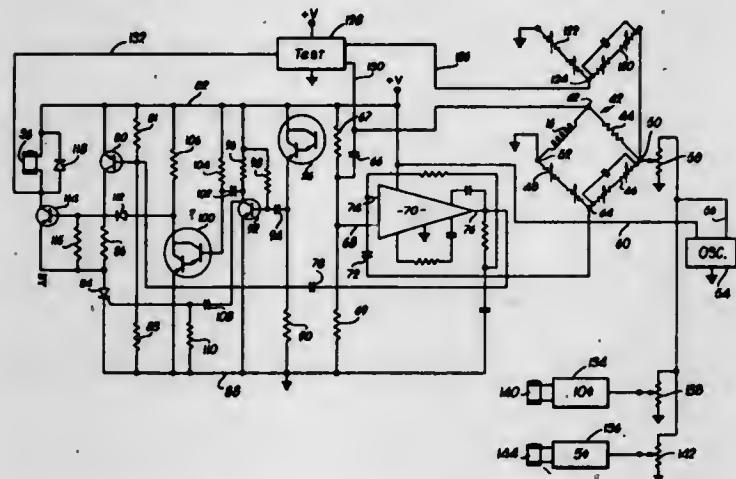
U.S. Cl. 221-63

1 Claim



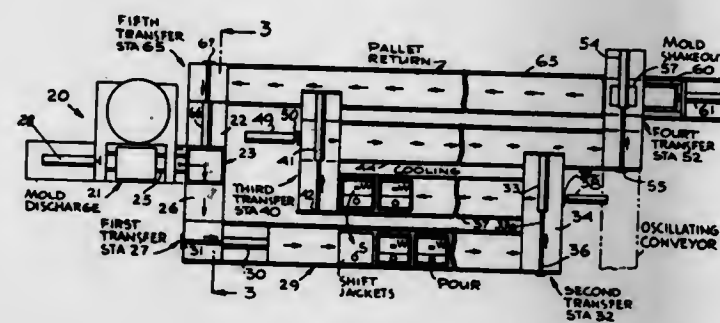
U.S. Cl. 194-100

9 Claims



U.S. Cl. 198-19

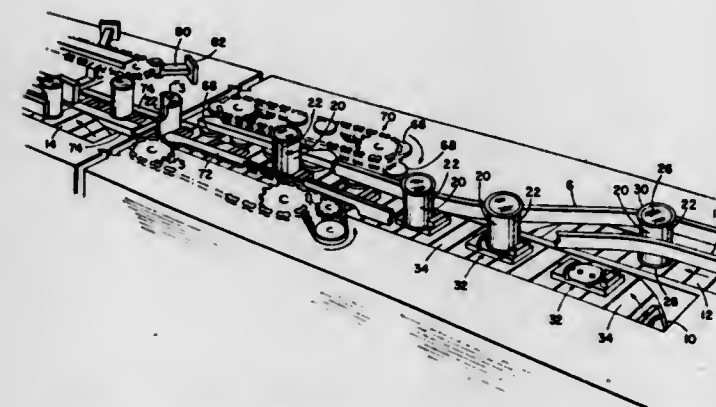
7 Claims



A conveyor system for the intermittent movement of foundry sand molds on pallets from a molding station through the metal pouring and solidifying stations, through jacket and weight transfer stations, to a shake-out station, and with return of pallets to the molding machine, is disclosed, including means for transferring the molds on pallets through right-angled turns to adjacent parallel paths of a conveyor means. The jackets and weights are transferred, under separate manual operation, from closely adjacent parallel portions of the conveyor path. The step-by-step movement of the pallets follows a repeated sequence in which all pallets on long conveyor sections are moved simultaneously forward one pallet length followed by simultaneous movement of all pallets one pallet length on all cross conveyor sections which connect the long conveyor sections. The timing may be automatic or manually controlled.

U.S. Cl. 198-33

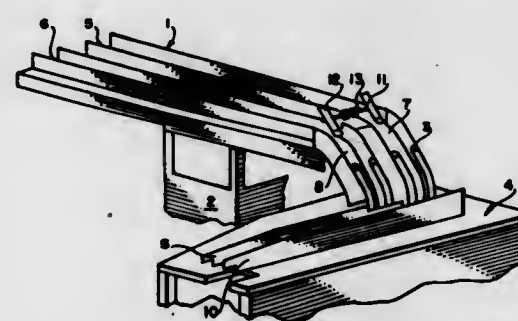
6 Claims



Int. Cl. B65g 43/08

U.S. Cl. 198-37

8 Claims

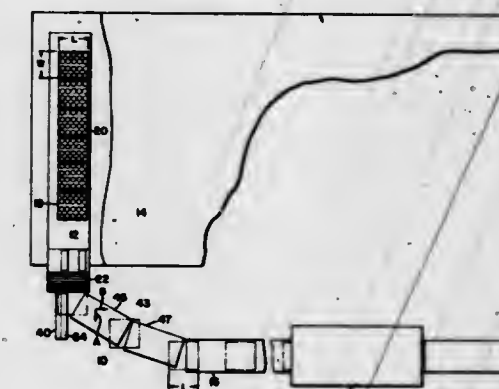


For feeding confectionery items such as plain or filled wafers and the like into a wrapping machine in a predetermined orientation, a feed-regulating system is provided wherein relatively flat items are arranged in flat face contacting relation to each other on the working reach of a conveyor and wherein feeler means responsive to the angle of tilt of the items is arranged to effect a desired control operation. By this means a control operation to speed up the conveyor is effected due to the tilt of the items to be fed when the out-feed from the conveyor is in excess of the infeed thereto. Conversely an increase in the rate of input relative to the rate of output causes the items to be fed to assume positions of substantially normal or perpendicular disposition relative to the conveyor and such a condition causes the feeler means to reduce or stop the motive means driving the conveyor.

Filed Sept. 2, 1969, Ser. No. 854,603

Int. Cl. B65g 37/00

8 Claims

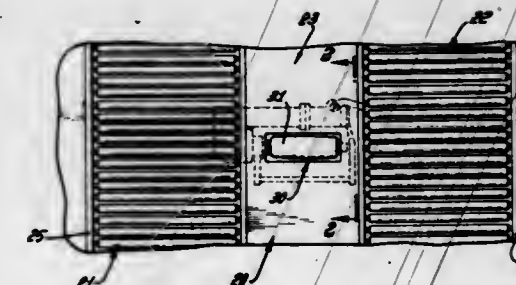


A corner transfer apparatus for transferring articles from a first conveyor to a second conveyor disposed at right angles to the first conveyor while retaining the articles throughout such transfer in their original orientation on the first conveyor including a transfer conveyor forming a longitudinal extension of the first conveyor and offset to one side of the longitudinal centerline extended of the first conveyor and a transporting conveyor having one corner at its receiving end subjacent the discharge end of the first conveyor and the other corner at its receiving end subjacent the side of the transfer conveyor, with the longitudinal centerline extended of the transporting conveyor intersecting the discharge end of the first conveyor at an acute angle so that when the trailing end of an article leaves the discharge end of the first conveyor, the article because of its overhanging weight drops onto and is conveyed by the transporting conveyor in its original orientation and discharged in such original orientation onto the second conveyor.

Filed Oct. 8, 1969, Ser. No. 864,763

U.S. CL. 198-127

8 Claims



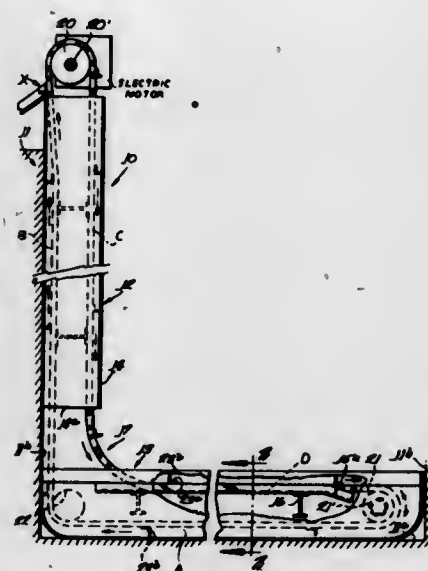
Power roller system for moving cargo over a supporting surface which includes a flyweight control for raising the roller from a nontraction lowered position to a traction upper position, the flyweight being driven by the prime mover which drives the roller, and acting through thrust members and linkages to raise or lower the power roller.

3,576,251

PRODUCT HANDLING APPARATUS

Robert W. Clyne, 5701 Sheridan Road, Chicago, Ill.
 Filed Nov. 18, 1968, Ser. No. 776,568
 Int. Cl. B65g 19/10; B01d 21/04
 U.S. Cl. 198—159

5 Claims



An apparatus of the general type described in my U.S. Pat. No. 3,303,920 is provided which is adapted for use in the mechanical handling of industrial waste that has accumulated along the bottom of a settling tank. The apparatus comprises a conveyor assembly having a power actuated endless carrier provided with a plurality of elongated flights. The flights engage the waste accumulated along the tank bottom and then elevate same along one vertical wall of the tank to a predetermined discharge station. The apparatus includes means for frictionally engaging the carrier flights prior to the latter moving along the tank bottom and engaging the waste accumulated thereon whereupon tension is imparted to a portion of the carrier while it is adjacent the tank bottom and causes the flights carried thereby to assume proper relative waste contacting positions.

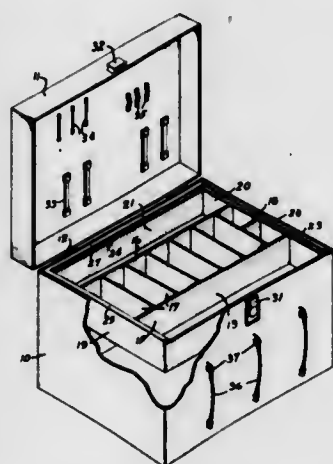
3,576,252

ARTIST'S CARRYING CASE

Beverly R. Conolly, 6018 Woodley Road, McLean, Va.
 Filed Sept. 15, 1969, Ser. No. 858,051
 Int. Cl. B44d 3/04

U.S. Cl. 206—17

2 Claims



An artist's carrying case in the form of a generally rectangular container with a hinged lid and a removable tray with compartments of sizes and configurations to contain clean and soiled brushes, paints, small jars of oil and turpentine and the like, with a palette-forming cover receivable in slideways in the sides of the box, the bottom of the box being partitioned to provide compartments, one for soiled paper or

cloth and the other for rolls of clean paper or cloth and other miscellaneous equipment, the lid of the box having elastic straps to hold knives and other utensils. On the exterior of the front of the box there are elastic straps to hold a folding easel, and a handle is attached along the longitudinal center of the top of box and equally spaced from the ends of the box so that the weight will be equally distributed for carrying by said handle.

3,576,253

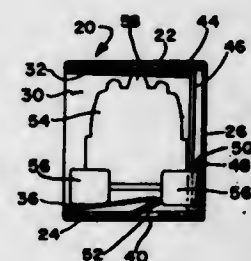
PACKAGE FOR TOYS

Richard L. Keats, Port Washington, N.Y., and Jerry D. Wood, Plainfield, N.J., assignors to Buddy L. Corporation, Neosho, Mo.

Filed Sept. 9, 1969, Ser. No. 864,925
 Int. Cl. B65d 5/50

U.S. Cl. 206—45.14

8 Claims



A toy package in the form of a carton having an open front through which the toy can be displayed and including internal means preventing unauthorized removal of the toy from the carton, especially floor means engageable with a lower inner part of the toy to accomplish this purpose.

3,576,254

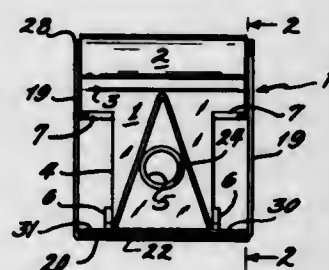
PACKAGE AND CARTON FOR HINGE LEAVES

Francis C. Peterson, Affton, Mo., assignor to C. Hager & Sons Hinge Manufacturing Company, St. Louis, Mo.

Filed May 1, 1969, Ser. No. 820,785
 Int. Cl. B65d 77/26

U.S. Cl. 206—65

1 Claim



A package and carton for hinge leaves which permit identical leaves to be stacked in a spaced predetermined oriented position so as to be insertable in a magazine used in connection with a machine which applies said leaves to doors.

3,576,255

DUAL DIFFERENTIAL STACKING

William H. Warren, West Brookfield, Mass. (East Brookfield Road North Brookfield, Mass. 01535)

Filed Mar. 3, 1969, Ser. No. 811,684
 Int. Cl. B07c 5/38

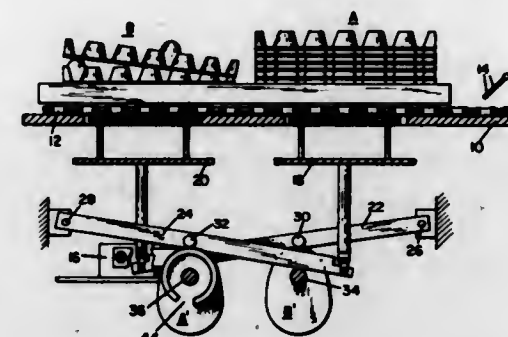
U.S. Cl. 209—74

8 Claims

Stacking empty trays, sensing occupancy of each tray

seriatim, interdicting the stacking of any tray found to contain matter, e.g. eggs and egg whites, etc., moving such tray

recovered while simultaneously utilizing the forces of surface tension and adhesion of such fluid to cause it to cling to a rotatable disc from which the fluid is scraped and allowed to flow into a central trough from whence it can be recovered, and further processed.



to a different position, and stacking such trays at this position, including automatic mechanisms for this purpose.

3,576,256

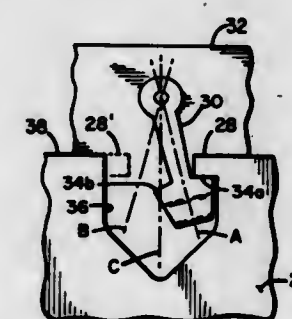
RETAINING PIN AND ACTUATION APPARATUS

David A. Tandeski, St. Paul, Minn., assignor to Sperry Rand Corporation, New York, N.Y.

Filed May 29, 1969, Ser. No. 828,821
 Int. Cl. B07c 5/34

U.S. Cl. 209—80.5

23 Claims



A selectively actuatable retaining pin for use with information bearing documents is disclosed. A selectively actuatable retaining pin having a ramp portion for assisting in the return of information bearing documents to the supported position is also shown. Various configurations of the selectively actuatable retaining pins are shown, with each of the embodiments utilizing the return ramp. Various mechanical and pneumatic means for actuating a specific retaining pin are described.

3,576,257

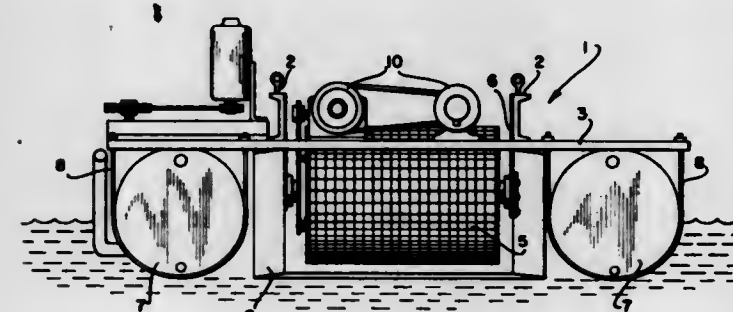
FLUID SEPARATION DEVICE

Robert L. Yates, Santa Clara, Calif., assignor to Lockheed Aircraft Corporation, Burbank, Calif.

Filed Mar. 18, 1970, Ser. No. 20,638
 Int. Cl. B01d 17/02

U.S. Cl. 210—242

10 Claims



A device for separating fluids having different physical properties is disclosed which utilizes a unique drum having a plurality of substantially horizontal vanes for "concentrating" in a relatively quite space a quantity of the fluid to be

3,576,258

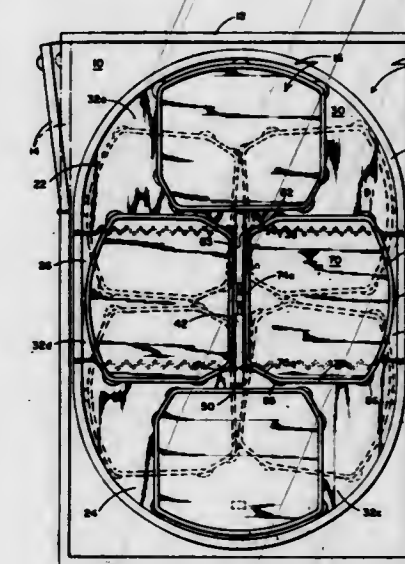
MOVABLE TRAY STORAGE APPARATUS

Robert D. Lowry, 123 Johnson Road, and John W. Harrison, 47 Yale St., Winchester, Mass. 01890

Filed Apr. 18, 1969, Ser. No. 817,461
 Int. Cl. A47I 3/14, 5/00; B65g 15/24

U.S. Cl. 211—162

5 Claims



A movable tray storage apparatus has a base with walls forming a continuous, generally oval pathway for an unconnected train of trays, each having supporting and guiding rollers for rollingly contacting the base, walls and adjacent carriers when the train of trays is propelled by pushing one tray in the train.

3,576,259

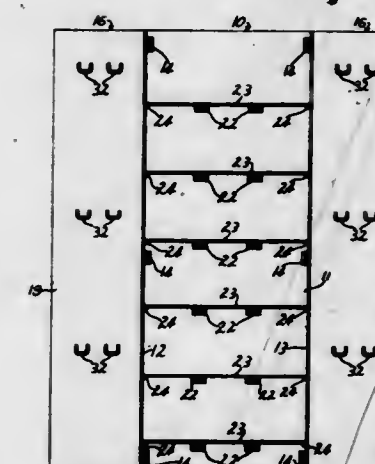
MERCHANDISE DISPLAY STAND

William S. Leath, Birmingham, Ala., assignor to Ebeco Industries, Inc.

Filed June 2, 1969, Ser. No. 829,465
 Int. Cl. A47I 5/00

U.S. Cl. 211—149

1 Claim



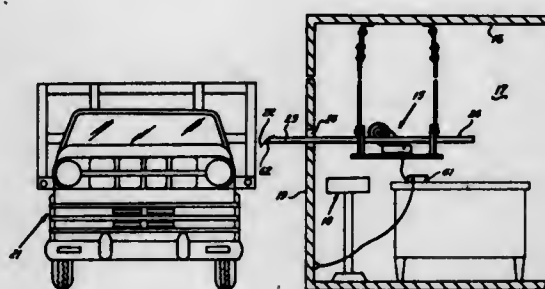
Merchandise display stand having first upstanding frame U-shaped in cross section connected to other upstanding frames U-shaped in cross section with base of each said other frames overlapping portion of and terminating intermediate ends of adjacent sides of first upstanding frame. Each end of base of first upstanding frame terminates at point intermediate ends of base of other upstanding frame adjacent thereto.

3,576,260

TICKET-DISPENSING APPARATUS FOR A DRIVE-IN SERVICE OFFICE

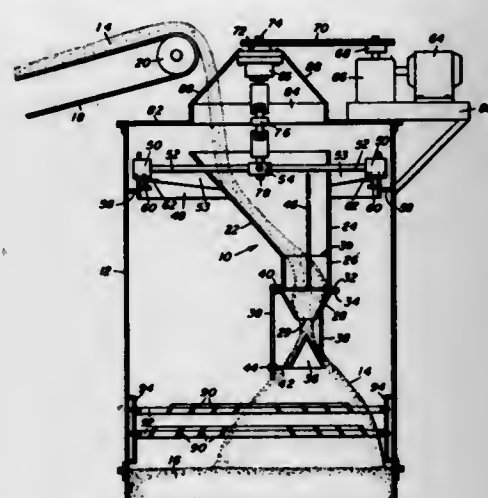
Lonnie E. Priefert, Belvidere, Nebr.
 Filed Mar. 20, 1969, Ser. No. 808,907
 Int. Cl. B25j 3/00; B65g; G01f 11/00
 U.S. Cl. 214-1

3 Claims



The ticket-dispensing apparatus includes a power-driven elongated dispensing arm that is adjustably supported for horizontal disposition from a room ceiling. One end section of the arm is extendible and retractable through an opening in a sidewall of the service office for delivery of a ticket or the like to a drive-in area located to the outside of such sidewall. By varying the extendible length and operating height of the arm relative to the sidewall and ceiling, respectively, the delivery end of the arm is adjustable for convenient access to both the service office attendant and vehicle driver.

ing of the chute so that the opening traces a circular path in a substantially horizontal plane. The bearing surface of the track has ridges and depressions which cause the chute to oscillate in a generally radial direction as it is rotated. An in-



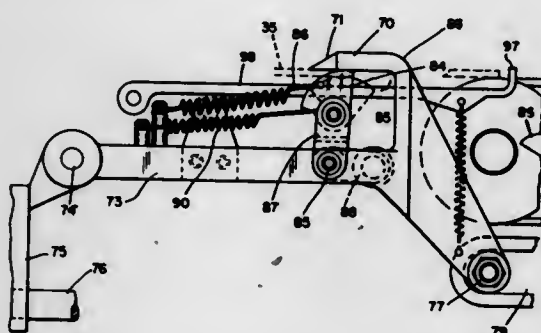
verted cone is suspended below the discharge opening for uniform distribution of the particulate in a conical stream. Deflecting baffles, fixed to the bin below the rotating chute and cone, enhance the mixing and distribution of the particulate.

3,576,261

AUTOMATIC FEED FOR LIFT OF LIMP PAPER

Edson H. Stacy, East Baldwin, Maine, assignor to Southworth Machine Company, Portland, Maine
 Filed Mar. 20, 1969, Ser. No. 808,724
 Int. Cl. B65g 59/06
 U.S. Cl. 214-8.5

8 Claims



An automatic apparatus for feeding lifts of limp paper from a stack in a magazine to the bed of a paper treatment machine, such as a punch. A combined stabber gripper penetrates the stack, clamps onto the lowermost lift, partially withdraws the lift and then moves out of the path of the lift. A pair of driven rolls then descend on the lift to press it against a lower endless conveyor and complete the withdrawal of the lift. When the trailing edges of the lift emerge from the nip, lateral shifting pressure is exerted, whereupon the lift engages a stop and is in position for treatment.

3,576,262

ROTARY PARTICLE DISTRIBUTOR FOR MINIMIZING PARTICLE SIZE SEGREGATION IN A BIN

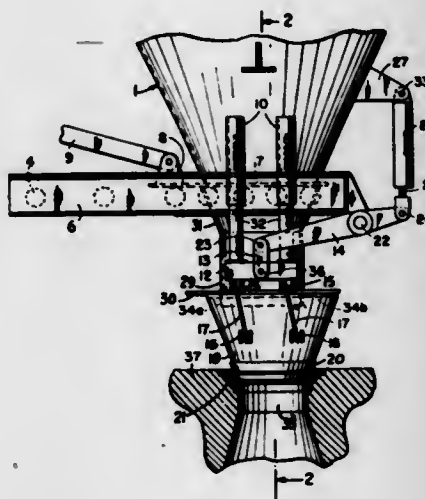
James L. Konchesky, and Ernest C. Oldaker, Morgantown, W. Va., assignors to the United States of America as represented by the Secretary of the Interior
 Filed June 6, 1969, Ser. No. 830,963
 Int. Cl. B65g 65/32

U.S. Cl. 214-17

13 Claims

A conical chute rotates upon a cylindrical track for distribution of particulate solids within a bin. The vertical axis of rotation of the chute is displaced from the discharge open-

ing of the chute so that the opening traces a circular path in a substantially horizontal plane. The bearing surface of the track has ridges and depressions which cause the chute to oscillate in a generally radial direction as it is rotated. An in-



3,576,263

EXTENSIBLE COAL BUNKER CONSTRUCTION

Werner Abendroth, Recklinghausen, Germany, assignor to Firma Carl Still, Recklinghausen, Germany
 Filed Feb. 25, 1969, Ser. No. 801,957
 Claims priority, application Germany, Mar. 5, 1968, P1,671,354.5
 Int. Cl. C10b 31/02

U.S. Cl. 214-35

7 Claims

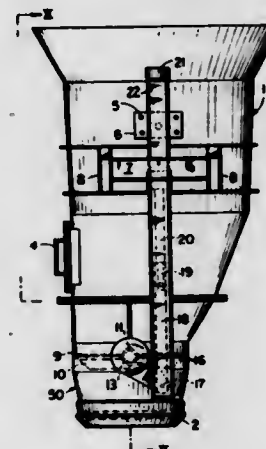
3,576,264

COKING FURNACE BUNKER CONSTRUCTION

Josef Stratmann, Recklinghausen, Germany, assignor to Firma Carl Still, Recklinghausen, Germany
 Filed Apr. 23, 1969, Ser. No. 818,699
 Claims priority, application Germany, Nov. 9, 1968, 6,806,246.4
 Int. Cl. B65g 3/12

U.S. Cl. 214-35

4 Claims



A closing valve particularly for bunkers for granulated material such as coal bunkers of coke, furnace charging trucks comprises a transfer funnel having a lower extension carrying a transverse journal which mounts a closing flap. The journal may be rotated with the closing flap for opening and closing the lower end of the funnel by actuating a drive lever which is pivotally connected to a crank arm extension of the journal on the exterior of the funnel. The lever is actuated by a piston and cylinder combination and the closing flap may be switched from an inclined open position to a horizontal closed position. The closing flap advantageously includes a top portion which is oriented upwardly in the closing channel and a bottom portion of smaller dimension, the size being beveled inwardly to the bottom portion.

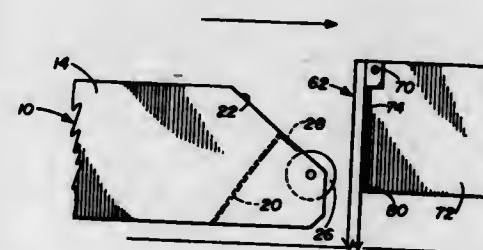
3,576,265

MATERIAL COLLECTION SYSTEM

de Corrova M. Brady, 508 Quincy, Plainview, and Kenneth R. Wilcox, 3611 Lenwood, Amarillo, Tex.
 Filed Jan. 13, 1969, Ser. No. 790,522
 Int. Cl. B65g 67/22

U.S. Cl. 214-42

22 Claims



Automatic collection of bulk materials such as garbage, mail, etc., by use of a plurality of pivotally supported collection receptacles, each having an open top and one opening normally closed by a pivoted closure. The collection receptacles are emptied into a transfer receptacle passed under each container by a truck to open the pivoted closure so that material in the collection receptacle falls into the transfer receptacle. When the transfer receptacle is full, it is elevated and tilted to place the contents in the truck.

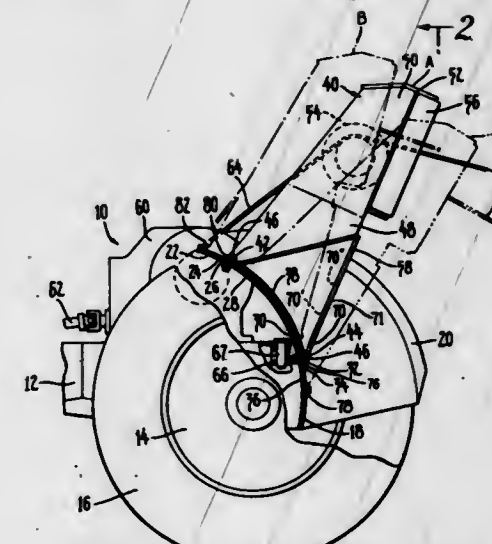
3,576,266

ADJUSTABLE SKIDDER ARCH

Allan J. Widley, Markham, Ontario, Canada, assignor to Massey-Ferguson, Inc., Des Moines, Iowa
 Filed Sept. 13, 1968, Ser. No. 759,646
 Int. Cl. B60p 1/00

U.S. Cl. 214-85.5

8 Claims



A log skidder has an arch slideably mounted on an arcuate butt plate and includes means for fastening the arch to the butt plate in one of several selected positions to enable movement of the arch between raised and lowered operative positions.

3,576,267

TRANSPORT CART

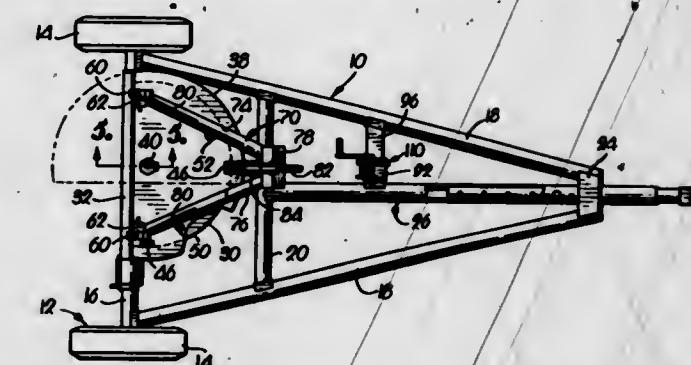
Nonnie J. Blevins; Eugene I. Wheeler, and Gilbert M. Cox, Carrollton, Mo., assignors to Said Blevins assignor to said Wheeler

Filed Mar. 13, 1969, Ser. No. 807,012

Int. Cl. B66c 23/00

U.S. Cl. 214-130

7 Claims



A wheeled transport cart including a system of standards and levers rigidly mounted upon a plate for swinging movement about the axle of the cart in combination with power means for lifting and carrying a transportable object. Means are provided on the chassis of the cart for hitching to a towing vehicle and for rotation of the plate to permit movement of relatively long objects over the road and within confined spaces.

3,576,268

BACK HOE OR GRADER

Don Suverkrop, Bakersfield, Calif., assignor to Hopper, Inc., Bakersfield, Calif.

Filed Mar. 19, 1969, Ser. No. 808,441

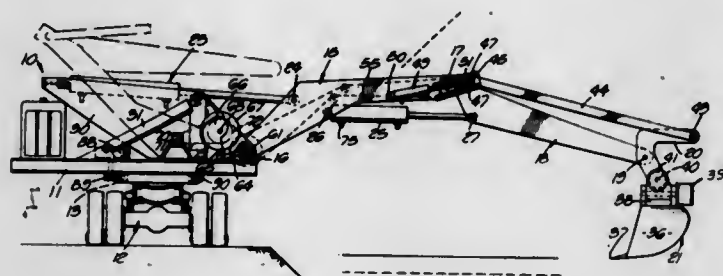
Int. Cl. E02f 3/75

U.S. Cl. 214-138

12 Claims

A back hoe or grader has a base member pivotally supporting a boom, and a dipper pivotally mounted at the end of the

boom, the effective lengths of the boom and dipper being equal. Separate hydraulic devices swing the boom about its pivotal support and swing the dipper relative to the boom, and the controls for these hydraulic devices may be selectively connected so that the angular rate of travel of the dipper with respect to the boom is substantially twice the angular rate of travel of the boom about its pivotal support. This limits the motion of the work implement connection at the outer end of the dipper so that it cannot move below a



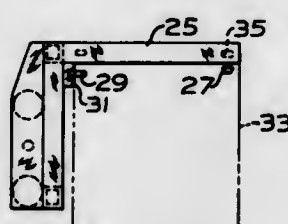
preselected straight line. Links pivotally connected to the work implement are also connected to a movable pivot on the boom, so that the attitude of the work implement may remain constant with respect to the dipper for back hoe operations, or constant with respect to the grade being cut for grading operations. A subframe is mounted for pivotal movement on the base member, and this subframe supports the hydraulic device for swinging the boom about its pivotal support. An additional hydraulic device swings the subframe relative to the base member.

3,576,269 VEHICLE FOR HANDLING CONTAINERS OF VARYING LENGTHS

Walter M. Shaffer, Chesterland, Ohio, assignor to Towmotor Corporation, Cleveland, Ohio
Filed Mar. 12, 1969, Ser. No. 806,359
Int. Cl. B66F 9/18

U.S. Cl. 214-621

8 Claims



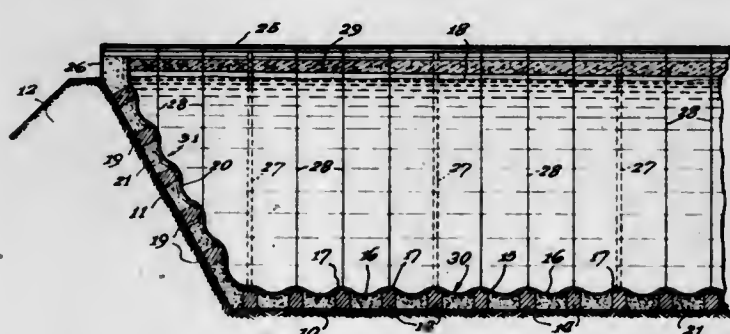
A container-handling device, which may be mounted on a suitable vehicle, comprising a pair of adjustable arms with locking devices on the lower and inside surfaces thereof for positively holding the containers to the device.

3,576,270 CRYOGENIC TANK

Lyle V. Larsen, Naperville, Ill., assignor to Chicago Bridge & Iron Company, Oak Brook, Ill.
Filed May 29, 1969, Ser. No. 829,020
Int. Cl. B65d 7/22

U.S. Cl. 220-10

12 Claims



An insulated tank for storage of liquids at low temperatures. The tank has an outer shell comprising a bottom,

sidewalls, and roof, and an inner shell comprising at least a bottom and sidewalls, with or without an inner roof. The inner shell bottom is made of metal sheet or plate suspended from a plurality of spaced-apart supports resting on the bottom of the outer shell. The suspended inner shell bottom has a plurality of elongated corrugations of smoothly undulating contour with the valleys of the corrugations being between the supports, and a plurality of corrugations crossing and generally conforming to the smoothly undulating contour of said elongated corrugations. The corrugations accommodate the liquid load and contraction of the suspended inner shell bottom during low temperature use of the tank without substantial horizontal movement of said suspended bottom or its supports and without overstressing the metal sheet or plate of which the inner shell bottom is made. The tank also has insulating material beneath said suspended inner shell metal bottom, between the inner and outer sidewalls of the tank and beneath the roof.

3,576,271 HINGED PLASTIC CONTAINER

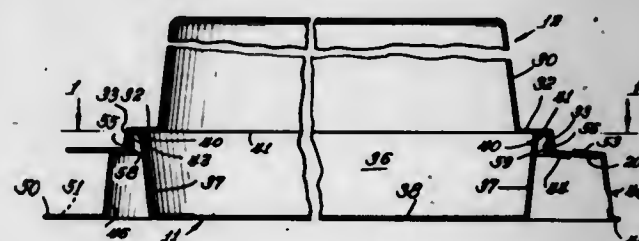
Leonard Seeley, Palatine, Ill., assignor to Plastofilm, Inc., Wheaton, Ill.

Filed Apr. 4, 1969, Ser. No. 813,604

Int. Cl. B65d 45/16, 51/04

U.S. Cl. 220-31

8 Claims



A container thermoformed from semirigid plastic sheet material, having separate cover and base portions connected by a hinge including a tongue in the cover portion which is insertable into a slit in the base portion, and which includes detent means on said tongue for preventing withdrawal of the tongue from the slit.

Hinge is free acting, tending neither to pop cover open when closed, nor closed when open. With this hinge construction cover can be manufactured from a transparent material for display or functional purposes, even though base is manufactured from an opaque material.

3,576,272 SCORE-LINE STRUCTURE

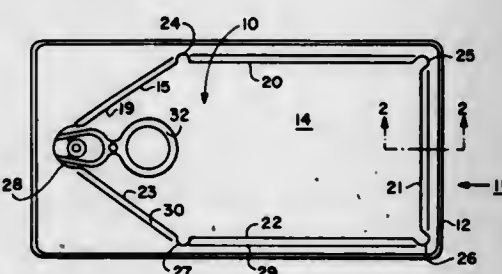
Edward E. Colby, Cincinnati, Ohio, assignor to The Proctor & Gamble Company, Cincinnati, Ohio

Filed June 30, 1969, Ser. No. 837,531

Int. Cl. B65d 17/24

U.S. Cl. 220-54

9 Claims



A score-line structure wherein a first score line defines a dispensing opening and a second score line is positioned outwardly of the first and parallel thereto. The second score line has a lesser depth than the first score line so that when the first score line is ruptured the portion of the end wall intermediate the first and second score lines curves upwardly to cause the sharp edge which results from the severance of the first score line to be pointed upwardly rather than inwardly. The result is to thereby decrease the cut hazard around the

edge of the dispensing opening when a consumer passes his hand through the dispensing opening to withdraw a quantity of the product packaged within the container.

3,576,273 CONTAINER END CLOSURE

Burton L. Gamble, Hinsdale, Ill., assignor to Continental Can Company, Inc., New York, N.Y.
Division of Ser. No. 456,213, May 17, 1965, Pat. No. 3,419,418.
Filed Aug. 29, 1968, Ser. No. 764,367
Int. Cl. B65d 7/42

U.S. Cl. 220-67

1 Claim



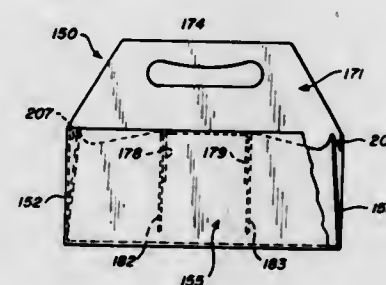
An end closure for applying to metal containers which is characterized by a central or main panel having a marginal extension terminating in an inwardly curled portion on the peripheral edge of a seaming panel which seaming panel extends inwardly to a chuck-engaging panel portion, and a protective coating of lacquer on the inside face of the closure which extends at least to the chuck-engaging panel portion and provides an area of bare metal for receiving a seaming compound on at least a portion of the seaming panel.

3,576,274 BOTTLE CARRIER

Melchior M. Stramaglia, Castro Valley, Calif., assignor to The Finn Industries, Inc., Chicago, Ill.
Filed Jan. 27, 1969, Ser. No. 794,311
Int. Cl. B65d 5/48, 25/28

U.S. Cl. 220-113

5 Claims



A bottle carrier which is fabricated from a single blank of sheet material which is cut, scored, folded and glued in a fashion such as to provide a knocked-down bottle carrier which can be easily and quickly automatically erected simply by exerting opposing forces on two of its opposite edges. The bottom of the bottle carrier is self-erecting and pulls a centrally disposed divider into position during the erection thereof.

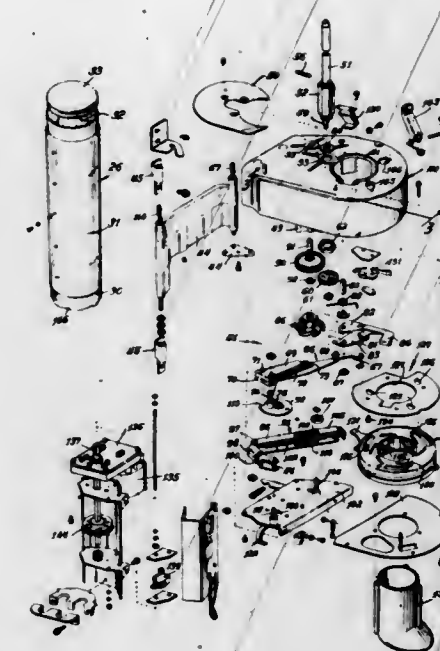
3,576,275 CUP-HANDLING MECHANISM

Floyd V. Bookout, Long Grove, Ill., assignor to Rock-Ola Manufacturing Corporation, Chicago, Ill.
Filed May 8, 1969, Ser. No. 822,955
Int. Cl. G07F 11/00

U.S. Cl. 221-11

7 Claims

A power-actuated assembly for automatically dispensing paper cups and periodically indexing a rotatable magazine to locate columns of stored cups in dispensing position, including a linkage system for selectively activating cup drop means operable to remove individual cups from an overdisposed stack thereof, and a secondary linkage system for automatically indexing the magazine to locate the cup stacks over the



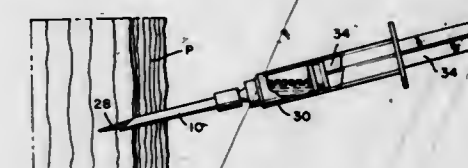
ments whereby to accommodate storage magazines of different capacities.

3,576,276 METHOD AND APPARATUS FOR IMPLANTING INSECTICIDES INTO PLANTS

John P. Clarke, 126 A St., and Newell K. Rasmussen, Box 1115, Hawthorne, Nev.
Filed Oct. 24, 1967, Ser. No. 677,798
Int. Cl. G01F 11/00

U.S. Cl. 222-1

9 Claims



Insecticide injection system for plants in which a hollow headed needle is driven into the plant, a disposable-type plastic syringe barrel is attached to the head of the hollow needle, a measured amount of insecticide is injected into the headed needle and the syringe barrel with a hypodermic syringe having a needle which extends completely through the barrel and into the headed needle, which is then withdrawn and a piston plunger inserted into the syringe barrel.

3,576,277 STERILE SCRUB APPARATUS WITH SELECTION OF WASHING LIQUID, AND METHOD

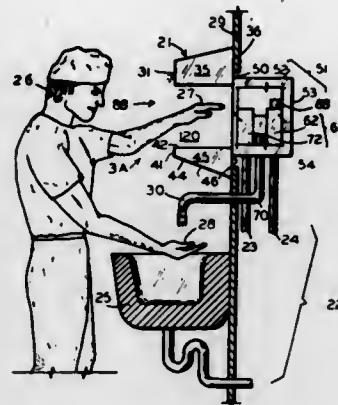
Herbert S. Blackman also known as Steve Blackman, Fort Worth, Tex., assignor to Don Curl, Memphis, Tex., fractional part interest to each
Filed June 19, 1969, Ser. No. 834,717
Int. Cl. B67d 5/60

U.S. Cl. 222-1

14 Claims

Apparatus for control of wash water at different temperatures for scrubbing or washing with avoidance of contamination by contact with nonsterile surfaces and the steps accom-

plished therewith using radiant energy sensing and control means to easily, selectively, rapidly, and fully start and stop a supply of hot water. An outlet chamber is provided for the radiator that permits the foam to flow uniformly through the



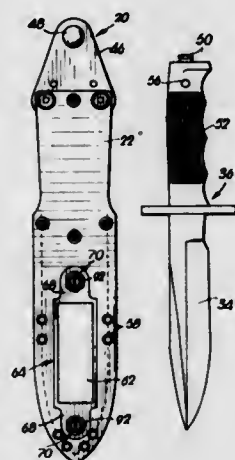
3,576,278

SURVIVAL KNIFE, SCABBARD AND SHARPENER ASSEMBLY

Edward A. Eastman, Independence, Mo., assignor to Locknife, Inc., Independence, Mo.
Filed July 17, 1969, Ser. No. 842,508
Int. Cl. F41b 13/04

U.S. Cl. 224-2

9 Claims



A knife scabbard having a honing stone mounted on the backside thereof and provided with a cover which releasably snaps thereon to protect the stone. One embodiment provides a rigid tray fixed to the scabbard which receives and firmly holds the stone. A second embodiment has a depression in the scabbard backpiece within which the stone is secured by an adhesive.

3,576,279

HEATER FOR AEROSOL FOAM-DISPENSING CONTAINERS

John Ayres, Mountainside, and Irving Reich, Princeton Junction, N.J., assignors to Carter-Wallace, Inc., New York, N.Y.

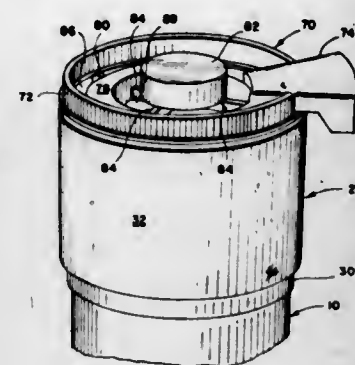
Filed Feb. 20, 1969, Ser. No. 800,868
Int. Cl. B67d 5/62

U.S. Cl. 222-146

13 Claims

A heating device is provided for heating foam products as they are discharged from aerosol containers. The device heats foam products, such as foam shaving lather, by passing the foam through a radiator in heat transfer relationship with

radiator to rapidly and efficiently heat the foam as it is discharged from the container.



3,576,280

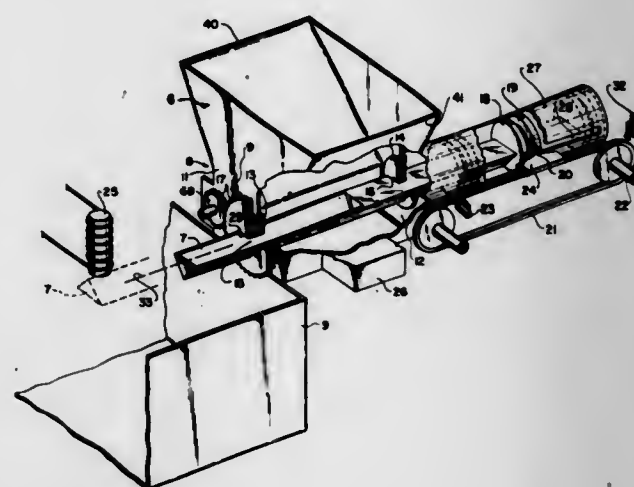
MECHANISM FOR DISPENSING TONER IN ELECTROGRAPHIC APPARATUS

Conrad Altmann, and Milton W. Sick, 400 Plymouth Ave. North, Rochester, N.Y.

Filed Nov. 4, 1968, Ser. No. 772,977
Int. Cl. G01f 11/10

U.S. Cl. 222-363

8 Claims



A mechanism for dispensing toner into a developer reservoir in an electrographic machine has an elongated trough which moves from a position for receiving toner to a position over the developer reservoir where it is inverted for emptying. These movements are assisted by a rotatable seal in a housing for the trough through which the trough slides.

3,576,281

DRAPERY PLEAT FORMING DIE

Frank J. Morana, 18 Robertson Road, West Orange, N.J.

Filed June 1, 1970, Ser. No. 41,828
Int. Cl. A41h 43/00; D06j 1/00, 1/12

U.S. Cl. 223-34

7 Claims

A drapery pleat-forming die comprising a pair of complementary, interengageable members adapted to shape drapery material into a pleat configuration, the said pair comprising a bottom member having an upstanding, vertically movable, spring-loaded rib projectable above the top edge of said bot-

tom member and retractable into said bottom member in response to forces generated by the top member, the top and

Thereafter, the tape is loaded into the first chamber to the exclusion of the second chamber.



3,576,283

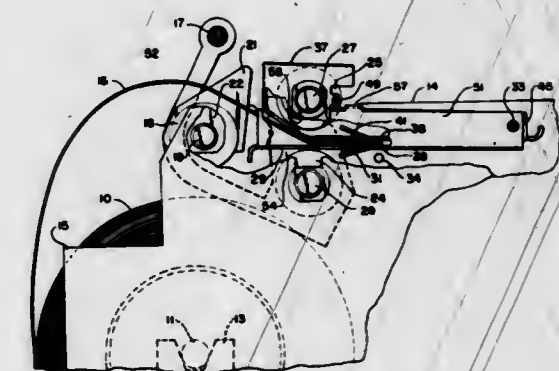
STRIP FEEDING MECHANISM

William A. MacDonald, Jr., Rochester, N.Y., assignor to Eastman Kodak Company, Rochester, N.Y.

Filed Apr. 21, 1969, Ser. No. 817,886
Int. Cl. G03b 1/56

U.S. Cl. 226-90

7 Claims



bottom members interlocking with the rib retracted to form the completed pleat.

ERRATUM

For Class 224-2 see:
Patent No. 3,576,278

3,576,282

PNEUMATICALLY BIASED TAPE LOADING

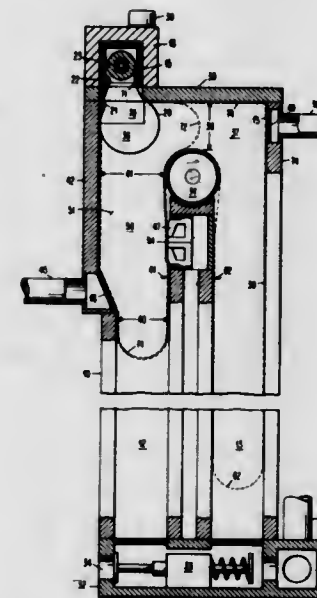
August P. Epina, Jr.; Vladimir Nejezchleb, Boulder, and Sidney H. Smith, Broomfield, Colo., assignors to International Business Machines Corporation, Armonk, N.Y.

Filed June 30, 1969, Ser. No. 837,796

Int. Cl. G11b 23/12

U.S. Cl. 226-7

10 Claims



Magnetic-recording tape disposed on a rotatable spool in a cartridge is pneumatically loaded into first and second tape storage chambers. The first chamber is adjacent the tape exit portion of the cartridge and vacuum in such first chamber tends to pull the tape thereto to the exclusion of the second chamber. To cause a tape loop to be formed in the second storage chamber, the second chamber (remote from the exiting portion of the cartridge) has an enlarged opening creating a greater pneumatic force to thereby attract the tape thereto to the exclusion of the first chamber. Yieldable limiting means are provided in the second chamber as a reduced cross-sectional portion wherein the tape attracting force is equalized between the two storage chambers.

3,576,284

APPARATUS FOR THE TREATMENT OF BUNDLE OF FILAMENTS

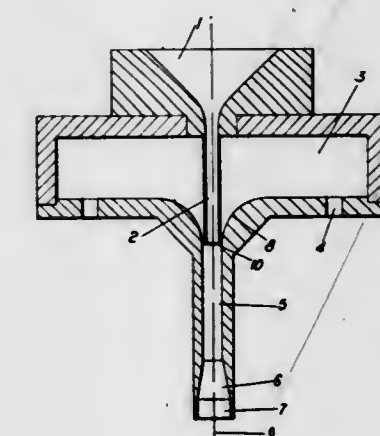
Jacques Fellous, Boulogne Billancourt, and Pierre Goullioud, Ecully, France, assignors to Societe Rhodiacta, Paris, France

Filed May 22, 1969, Ser. No. 826,997

Claims priority, application France, May 22, 1968, 50048/68
Int. Cl. B65h 51/16

U.S. Cl. 226-97

3 Claims



The specification describes an apparatus for the treatment of a bundle of filaments with a jet of fluid under pressure. A distribution chamber is formed with at least one conduit for feeding fluid under pressure thereto, an outlet duct connected to said distribution chamber by a smooth, inwardly convex surface, formed as a curve of revolution, coaxial with the outlet duct, and a convergent inlet member to the chamber connected to a tube, coaxial with the outlet duct, and extending into the distribution chamber, the free end of the tube being located within and spaced from said smooth surface at the junction thereof with said outlet duct.

3,576,285
APPARATUS FOR A SETTABLE WORKING MATERIAL
FEED IN PRESSES IN FORM OF CYCLES

Roger Muller, Neuilly Sur Seine, France, assignor to Etablissement D.F., Paris, France

Filed June 25, 1968, Ser. No. 739,762

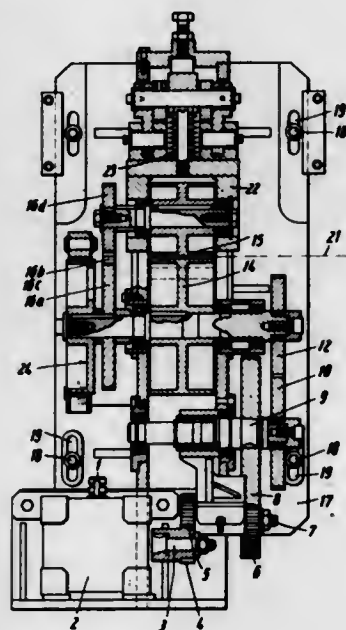
Claims priority, application Germany, Aug. 3, 1967,

P 16 02 509.5

Int. Cl. B65h 17/22

U.S. Cl. 226-141

4 Claims



An apparatus for a settable working material feed in presses in cycle form having feed rollers driven by a press by means of a step-by-step member, which includes a change gear drive, means for a rough setting step for a basic feed, and means for a correction- or fine-setting step. Two feed rollers are also provided and the step-by-step member is operatively connected with the means for the rough setting step-by-step means of the change gear drive. The step-by-step member is operatively connected with the feed rollers by means of the means for a correction- or fine-setting step.

3,576,286
AUTOMATIC FASTENING MACHINE

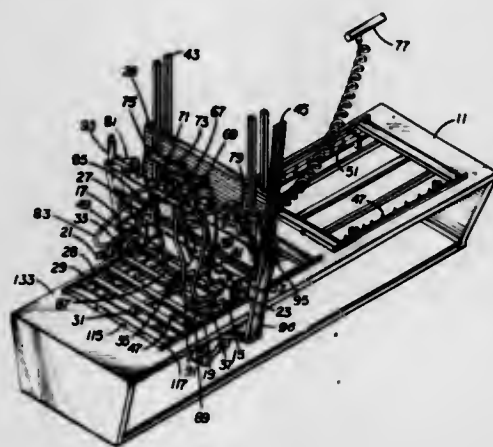
Troy J. Bunch, 18 Van Court, Hurst, Tex.

Filed Dec. 18, 1968, Ser. No. 784,569

Int. Cl. B27f 7/06

U.S. Cl. 227-2

4 Claims



An automatic fastening machine characterized by a carriage carrying fastening guns over a workpiece on a table for fastening together the component parts of the workpiece; the fastening guns being pivotally mounted on the trailing side of the carriage so as to fire at predetermined points while the carriage is moving forward without jamming the carriage. Also disclosed are additional specific and advantageous

structural features; such as, apparatus carried on the forward side of the carriage for automatically emplacing the component parts of the workpiece.

3,576,287
FASTENER INSERTING MACHINES WITH WORK
STRIPPING SUPPORT

James N. Henshaw, and Clive R. Enock, Birmingham, England, assignors to USM Corporation, Flemington, N.J.

Filed May 23, 1969, Ser. No. 827,375

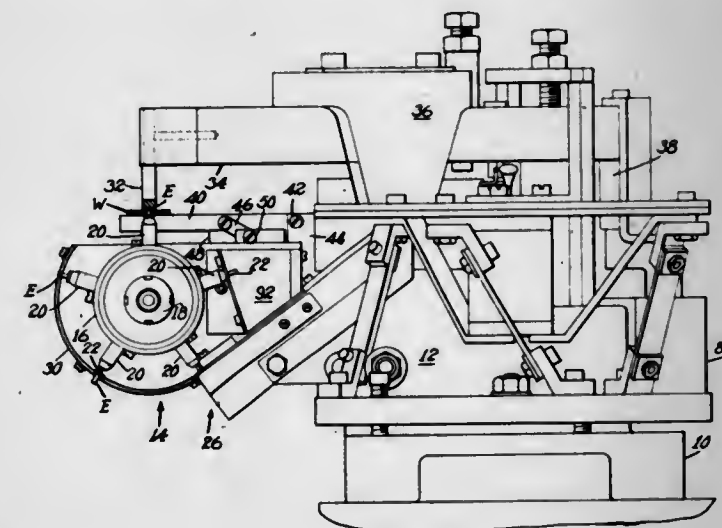
Claims priority, application Great Britain, Oct. 8, 1968,

47551/68

Int. Cl. B21j 15/10

U.S. Cl. 227-60

4 Claims



A machine having a pair of cooperating fastener setting tools, one of which is cyclically movable to receive a fastener in one position and present it to the other tool for setting in a second position, is provided with a pivotal support for a work piece in which the fastener is being inserted. Pneumatic mechanism for operating the tools also controls cyclical heightwise movements of the work support in time relation such that an inserted fastener is stripped with the work from the fastener presenting tool and the latter cleared for return movement to receive another fastener to be inserted.

3,576,288
MEDICAL INSTRUMENT

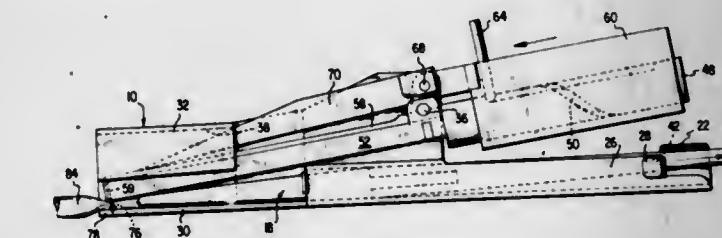
David T. Green, Norwalk, Conn., assignor to United States Surgical Corporation, Baltimore, Md.

Filed Oct. 10, 1968, Ser. No. 766,544

Int. Cl. B25c 5/02

U.S. Cl. 227-111

15 Claims



There is disclosed an attachment designed to be carried by a clamping tool such as an hemostat for providing said tool with the capability of sealing the end of a fluid carrying vessel such as a blood vessel by means of staples. A staple cartridge is easily secured to an hemostat; and while the hemostat temporarily clamps and seals the end of a blood vessel, staples are smoothly ejected thereby perfecting a more permanent seal and permitting the removal of the hemostat.

3,576,289
COMBINED SPINDLE AND INTERNAL CHUCK FOR
FRICTION WELDER

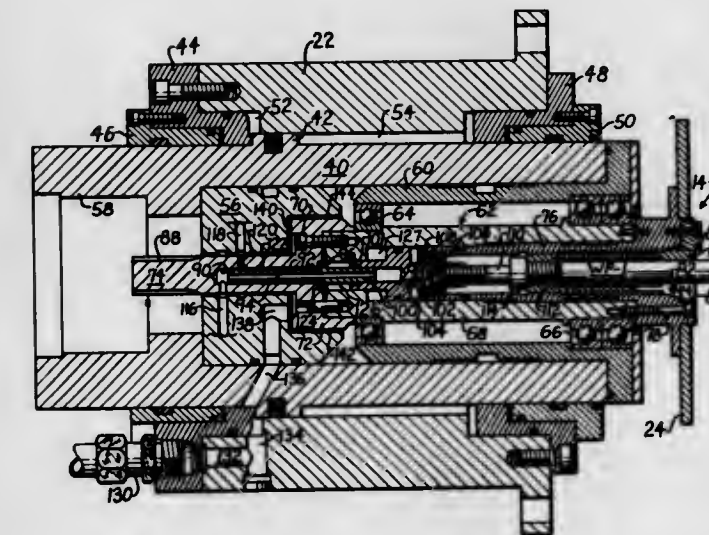
Wilmer E. Funk, Roanoke; Howard M. Hilgers, East Peoria, and Ira H. Sage, Peoria, Ill., assignors to Caterpillar Tractor Co., Peoria, Ill.

Filed Dec. 26, 1968, Ser. No. 787,019

Int. Cl. B23k 27/00

U.S. Cl. 228-2

4 Claims



A friction welding machine has a workpiece holding chuck located inside a rotary spindle in order to reduce spindle bearing loads and alleviate problems of workpiece misalignment.

3,576,290
BAG IN A BOX FOR FROZEN EGGS OR THE LIKE

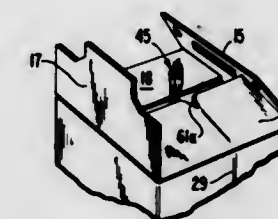
Joseph Marchisen, Hightstown, N.J., assignor to Union Camp Corporation, New York, N.Y.

Filed Aug. 1, 1969, Ser. No. 846,754

Int. Cl. B65d 5/10, 5/56

U.S. Cl. 229-38

4 Claims



This container is formed of a paperboard or corrugated box in which is embodied a tough, thermoplastic, heat-sealed liner bag, particularly useful for shipping frozen eggs or like perishable commodities. The preferred material of the liner bag consists of ethylene-vinyl acetate copolymer. The liner bag is made of a sheet folded to form a gusseted bottom and sealed along the side edges to form a bag with a full opening at the top. The container has median fold lines in opposed sides and top and bottom flaps hinged thereto. The top flaps are formed with V-cut portions which overlie each other in the assembled box to form a keyhole slot. The liner bag is detachably secured within the container and to the flaps by an adhesive pattern in small spots by a weak bond, whereby, when the container and flaps are in the erected position, the top portion of the bag is pulled open for filling. After filling, the top of the bag is pulled from the flaps and gathered to close the bag. The closed and gathered top is threaded through the keyhole slot in the top flaps which overlap to hold the closed bag top in place. The bottom flaps of the container may be cut away to form tongue and groove portions to provide an interlocking bottom closure.

3,576,291
VORTEX ANALOG TO DIGITAL CONVERTER HAVING
TIME MODULATED OUTPUT

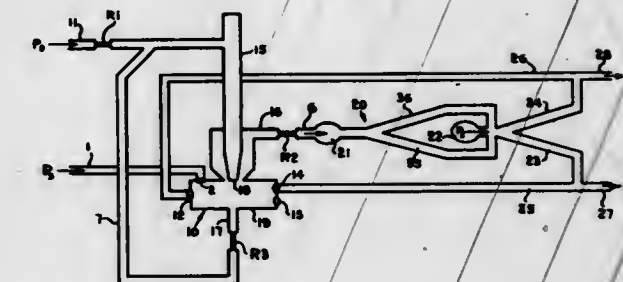
Lael B. Taplin, Livonia, Mich., assignor to The Bendix Corporation

Filed Aug. 29, 1969, Ser. No. 854,189

Int. Cl. G06d 5/00

U.S. Cl. 235-201

9 Claims



An apparatus for converting an analog control signal to a digital signal in a fluid system, wherein the apparatus comprises: a vortex device in combination with a complementary flip-flop which produces time modulated pulses related to the magnitude of the control signal applied to the vortex device.

3,576,292
VALVE CONTROL SYSTEM

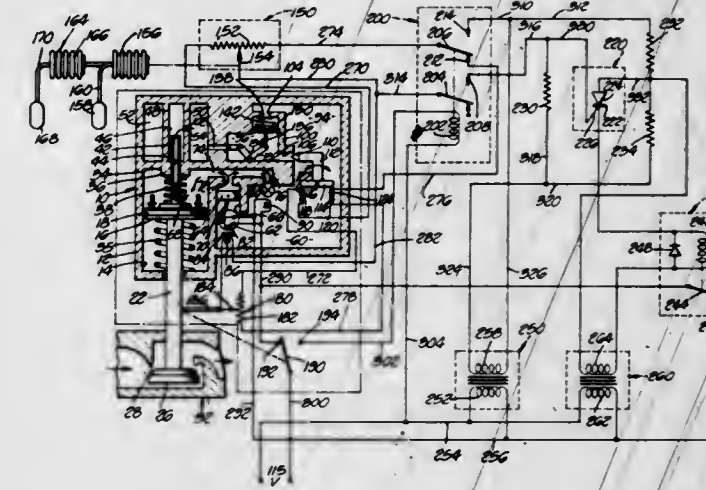
Leo Block, Temple City, Calif., assignor to Raypak, Inc., Westlake Village, Calif.

Filed Mar. 27, 1969, Ser. No. 811,047

Int. Cl. G05d 23/275

U.S. Cl. 236-78

7 Claims

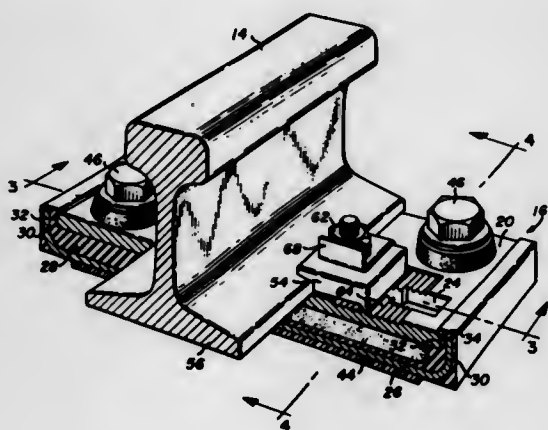


The system of the invention is exemplified in an electrical control system for modulating valves particularly gas valves, and especially wherein the valve is of a type which is positioned hydraulically by means of a motor pressurizing a hydraulic liquid. The particular valve is of a type embodying a bleed valve which when opened causes the valve to move to a closed position. The control system is a proportioning bridge type of system using control potentiometers. In the system the valve goes to a closed position when it reaches a predetermined position in its travel, for example, a 20 percent open position. This is accomplished by way of contacts operable when the modulating valve reaches this position causing the said bleed valve to open thereby bringing about closure of the modulating valve. Normal operation is resumed when the controlling potentiometer indicates a demand for valve opening of greater than 20 percent. This is accomplished by way of a sensitive circuit means using an SCR that senses a voltage at the control potentiometer indicative of a demand for valve opening of greater than 20 percent which brings about operation of further contacts which recloses the bleed valve causing normal operation to resume.

3,576,293
DIRECT FIXATION RAIL FASTENER APPARATUS
 Robert L. Landis, Los Altos Hills, and Edward D. O'Brien,
 Woodside, Calif., assignors to The Landis Sales Company,
 Los Altos Hills, Calif.

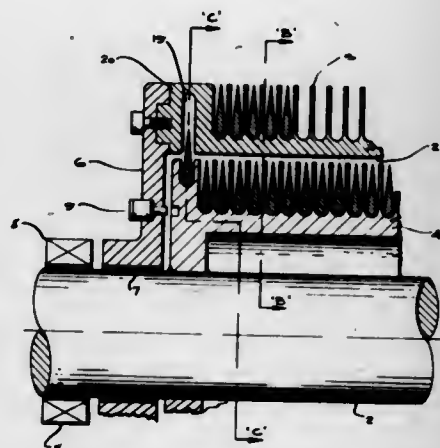
Filed Feb. 26, 1969, Ser. No. 802,480
 Int. Cl. E01b 9/02, 9/62
 U.S. Cl. 238—287

11 Claims



A rail fastener device for directly affixing rapid transit system rail apparatus to a rigid support structure. The device includes a rail plate and a baseplate which are separated by a layer of elastomeric material which is bonded to the adjacent sides of each plate. Means are provided for fastening the rail directly to the rail plate, and means are provided for fastening the baseplate directly to the support structure. The rail plate, however, is free to float on the elastomeric material with respect to said baseplate so as to provide vibrational

having a helix, the helix on one drum being in the opposite direction to that on the other drum. The cable is wound on



the inner drum and then passed through an opening in the outer drum for winding thereon.

3,576,296
METHOD AND APPARATUS FOR THREADING A STRIP IN MOTION INTO THE CLAMP SLOT OF A COILER
 Rudolf Wilhelm Speelmann, Hilden, Germany, assignor to
 Moeller & Neumann GmbH, St. Ingbert/Saar, Germany
 Filed Jan. 27, 1969, Ser. No. 794,087
 Claims priority, application Germany, Jan. 25, 1968,
 P1652605.9
 Int. Cl. B21c 17/10

U.S. Cl. 242—78.3

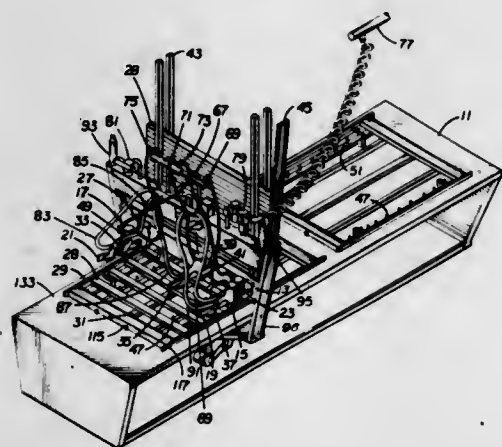
9 Claims

An apparatus for a settable working material feed in presses in cycle form having feed rollers driven by a press by means of a step-by-step member, which includes a change gear drive, means for a rough setting step for a basic feed, and means for a correction- or fine-setting step. Two feed rollers are also provided and the step-by-step member is operatively connected with the means for the rough setting step-by-step means of the change gear drive. The step-by-step member is operatively connected with the feed rollers by means of the means for a correction- or fine-setting step.

3,576,286
AUTOMATIC FASTENING MACHINE
 Troy J. Bunch, 18 Van Court, Hurst, Tex.
 Filed Dec. 18, 1968, Ser. No. 784,569
 Int. Cl. B27f 7/06

U.S. Cl. 227—2

4 Claims



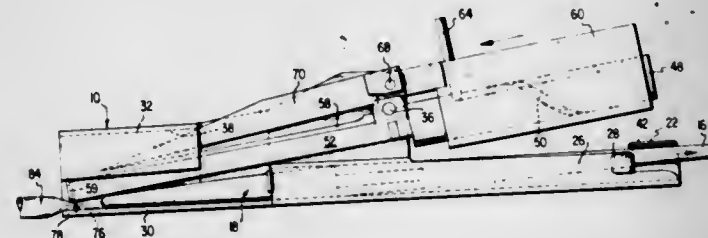
An automatic fastening machine characterized by a carriage carrying fastening guns over a workpiece on a table for fastening together the component parts of the workpiece; the fastening guns being pivotally mounted on the trailing side of the carriage so as to fire at predetermined points while the carriage is moving forward without jamming the carriage. Also disclosed are additional specific and advantageous

A machine having a pair of cooperating fastener setting tools, one of which is cyclically movable to receive a fastener in one position and present it to the other tool for setting in a second position, is provided with a pivotal support for a workpiece in which the fastener is being inserted. Pneumatic mechanism for operating the tools also controls cyclical heightwise movements of the work support in time relation such that an inserted fastener is stripped with the work from the fastener presenting tool and the latter cleared for return movement to receive another fastener to be inserted.

3,576,288
MEDICAL INSTRUMENT
 David T. Green, Norwalk, Conn., assignor to United States
 Surgical Corporation, Baltimore, Md.
 Filed Oct. 10, 1968, Ser. No. 766,544
 Int. Cl. B25c 5/02

U.S. Cl. 227—111

15 Claims



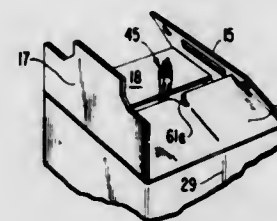
There is disclosed an attachment designed to be carried by a clamping tool such as an hemostat for providing said tool with the capability of sealing the end of a fluid carrying vessel such as a blood vessel by means of staples. A staple cartridge is easily secured to an hemostat; and while the hemostat temporarily clamps and seals the end of a blood vessel, staples are smoothly ejected thereby perfecting a more permanent seal and permitting the removal of the hemostat.

A friction welding machine has a workpiece holding chuck located inside a rotary spindle in order to reduce spindle bearing loads and alleviate problems of workpiece misalignment.

3,576,290
BAG IN A BOX FOR FROZEN EGGS OR THE LIKE
 Joseph Marchisen, Hightstown, N.J., assignor to Union Camp Corporation, New York, N.Y.
 Filed Aug. 1, 1969, Ser. No. 846,754
 Int. Cl. B65d 5/10, 5/56

U.S. Cl. 229—38

4 Claims

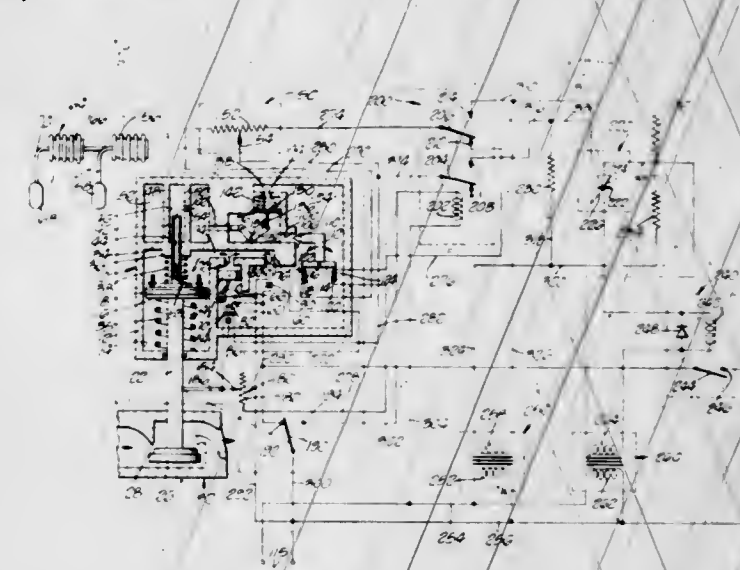


This container is formed of a paperboard or corrugated box in which is embodied a tough, thermoplastic, heat-sealed liner bag, particularly useful for shipping frozen eggs or like perishable commodities. The preferred material of the liner bag consists of ethylene-vinyl acetate copolymer. The liner bag is made of a sheet folded to form a gusseted bottom and sealed along the side edges to form a bag with a full opening at the top. The container has median fold lines in opposed sides and top and bottom flaps hinged thereto. The top flaps are formed with V-cut portions which overlap each other in the assembled box to form a keyhole slot. The liner bag is detachably secured within the container and to the flaps by an adhesive pattern in small spots by a weak bond, whereby, when the container and flaps are in the erected position, the top portion of the bag is pulled open for filling. After filling, the top of the bag is pulled from the flaps and gathered to close the bag. The closed and gathered top is threaded through the keyhole slot in the top flaps which overlap to hold the closed bag top in place. The bottom flaps of the container may be cut away to form tongue and groove portions to provide an interlocking bottom closure.

3,576,291
SYSTEM FOR MODULATING VALVES
 Filed Mar. 27, 1969, Ser. No. 811,047
 Int. Cl. G05d 23/275

U.S. Cl. 236—78

7 Claims



The system of the invention is exemplified in an electrical control system for modulating valves particularly gas valves, and especially wherein the valve is of a type which is positioned hydraulically by means of a motor pressurizing a hydraulic liquid. The particular valve is of a type embodying a bleed valve which when opened causes the valve to move to a closed position. The control system is a proportioning bridge type of system using control potentiometers. In the system the valve goes to a closed position when it reaches a predetermined position in its travel, for example, a 20 percent open position. This is accomplished by way of contacts operable when the modulating valve reaches this position causing the said bleed valve to open thereby bringing about closure of the modulating valve. Normal operation is resumed when the controlling potentiometer indicates a demand for valve opening of greater than 20 percent. This is accomplished by way of a sensitive circuit means using an SCR that senses a voltage at the control potentiometer indicative of a demand for valve opening of greater than 20 percent which brings about operation of further contacts which recloses the bleed valve causing normal operation to resume.

3,576,293

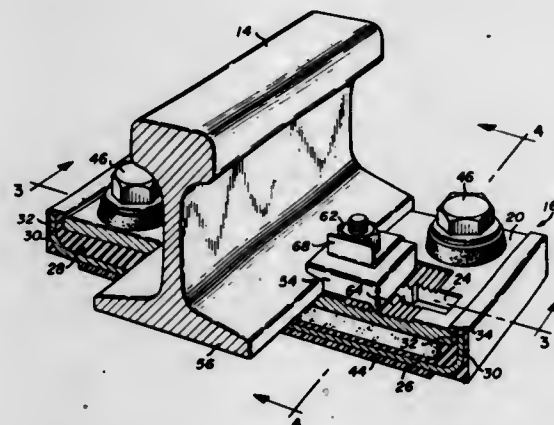
DIRECT FIXATION RAIL FASTENER APPARATUS
Robert L. Landis, Los Altos Hills, and Edward D. O'Brien,
Woodside, Calif., assignors to The Landis Sales Company,
Los Altos Hills, Calif.

Filed Feb. 26, 1969, Ser. No. 802,480

Int. Cl. E01b 9/02, 9/62

U.S. Cl. 238-287

11 Claims



A rail fastener device for directly affixing rapid transit system rail apparatus to a rigid support structure. The device includes a rail plate and a baseplate which are separated by a layer of elastomeric material which is bonded to the adjacent sides of each plate. Means are provided for fastening the rail directly to the rail plate, and means are provided for fastening the baseplate directly to the support structure. The rail plate, however, is free to float on the elastomeric material with respect to said baseplate so as to provide vibrational damping as well as electrical isolation therebetween.

3,576,294

FLUIDIC CLEANSING DEVICE

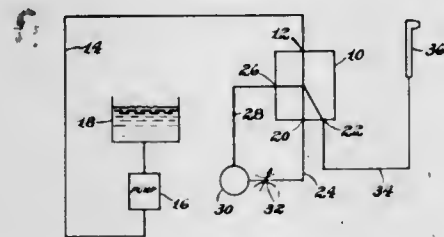
Walton B. Baldwin, Elmira, N.Y., assignor to The Bendix Corporation

Filed Feb. 26, 1969, Ser. No. 802,347

Int. Cl. B05b 1/08

U.S. Cl. 239-101

6 Claims



A cleansing device is herein disclosed in which the pressurized fluid provides the energy source to power the device and a fluidic element converts a stream of pressurized fluid into a stream of intermittent fluid pulses for the cleansing of the teeth and gums of the user.

3,576,295

MEANS FOR STORING CRUSH-SENSITIVE CABLE CONFIGURATIONS

Neville Edward Hale, Port Credit, Ontario, Canada, assignor to Fathom Oceanology Limited, Port Credit, Ontario, Canada

Filed May 12, 1969, Ser. No. 823,700

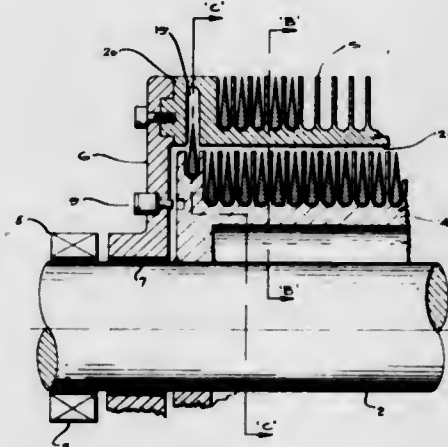
Int. Cl. B65h 75/00

U.S. Cl. 242-54

8 Claims

Apparatus for storing a cable with fairing sections consists of a pair of spaced-apart drums, the outer surfaces of both

having a helix, the helix on one drum being in the opposite direction to that on the other drum. The cable is wound on



the inner drum and then passed through an opening in the outer drum for winding thereon.

3,576,296

METHOD AND APPARATUS FOR THREADING A STRIP IN MOTION INTO THE CLAMP SLOT OF A COILER
Rudolf Wilhelm Speelmans, Hilden, Germany, assignor to Moeller & Neumann GmbH, St. Ingbert/Saar, Germany

Filed Jan. 27, 1969, Ser. No. 794,087

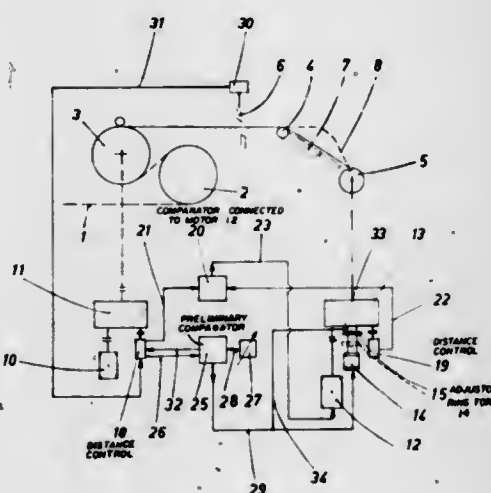
Claims priority, application Germany, Jan. 25, 1968,

P1652605.9

Int. Cl. B21c 17/10

U.S. Cl. 242-78.3

9 Claims



A process for threading a strip during motion into the clamp slot of a coiler drum which is accelerated after clamping of the strip front end. The loop formed in front of the drum is taken up in a controlled manner without shock by continuous comparison of the fed and wound strip length, according to which the coiler motor is switched from speed control to strip tension.

3,576,297

ROPE HOLDER

John M. Cowart, Jr., 2408 N. Hooper St., Albany, Ga.

Filed Aug. 21, 1969, Ser. No. 851,999

Int. Cl. B65h 75/36

U.S. Cl. 242-85.1

4 Claims

The present invention is a generally rectangular, buoyant line or rope holder having a body with large and small side-by-side yokes for the winding about the smaller yoke of the anchoring end of a rope and about the larger yoke the major

portion of the rope adapted to be readily unwound and released to allow the proper length to be used as desired as,



for example, behind a boat by a skier, or attached to an anchor, or in another manner.

3,576,298

AEROSPACE VEHICLE

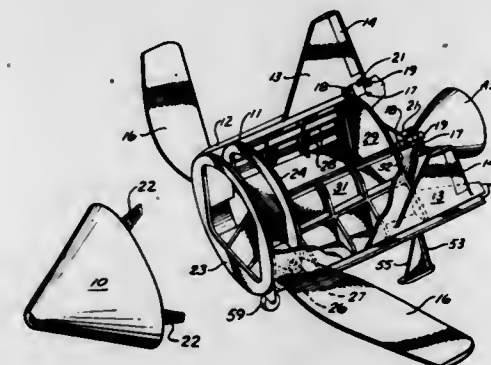
Burton Barnett, Los Alamitos; Frederick Raymes, Los Angeles, and Thomas A. Sackinger, Hacienda Heights, Calif., assignors to North American Rockwell Corporation

Filed Nov. 13, 1967, Ser. No. 682,489

Int. Cl. B64g 1/20

U.S. Cl. 244-1

18 Claims



An aerospace vehicle is described comprising a substantially conical forward crew compartment or command module mated to a substantially cylindrical rearward service module. Aerodynamic fairings are provided along the midline on the sides of the cylindrical portion and a substantial distance aft thereof for providing lift at hypersonic velocities and approximately vertical fins are provided on the fairings for aerodynamic stability and control. Wings are mounted within the aerodynamic fairings at high velocities and pivotably extended therefrom at lower velocities and altitudes to provide low speed lift. Upon reentry into the earth's atmosphere hypersonic lift is provided by the body and the fairings for bringing the vehicle to the area of a selected landing site and, at lower flight speeds deeper into the atmosphere, augmented lift is provided by the extended wings for landing the vehicle on a conventional runway. A rocket engine for propulsion has a large expansion ratio bell for use in the vacuum of space. The large ratio bell is jet-isonable to give a low expansion ratio for use of the same engine within the atmosphere. Rear landing skids are pivotable into and out of the wake of the vehicle to reduce the requirement for heat shielding. Similarly, reaction control rocket motors are also pivotable into and out of the wake of the vehicle for minimizing heat protection requirements. Such a vehicle is readily adaptable to a broad variety of space missions such as cargo ferry or satellite recovery, and is reusable with minimum refurbishment.

3,576,299

DIRECTION CONTROL SYSTEM

Thomas F. Hanson, 24204 Heritage Lane, Newhall, Calif.

Filed May 16, 1968, Ser. No. 729,796

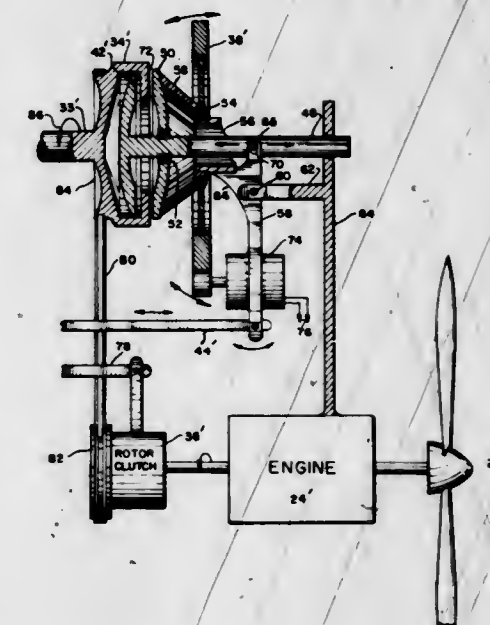
Int. Cl. B64c 27/22

U.S. Cl. 244-17.19

3 Claims

The specification discloses an airborne vehicular, direction control system. The example shown is an autogyro having a rotary wing and a substantially conventional propeller

propulsion system. The rotor may be coupled to the propulsion system for VTOL and STOL modes of operation but is otherwise generally free wheeling. For direction or yaw control in flight a separate flywheel is provided internally of the vehicular body having angular momentum coupleable to the rotor in the same rotational sense with respect to the vehicu-



lar body. The direction control is then effected by means which selectively couple angular momentum to the rotor from the flywheel to achieve a yaw effect in one sense or from the rotor to the body, by braking means between the rotor and the body, to achieve a yaw effect in the opposite sense.

3,576,300

AIRCRAFT

Jack Palfreyman, Tansley, Near Matlock, England, assignor to Rolls-Royce Limited, Derby, England

Filed July 23, 1969, Ser. No. 844,065

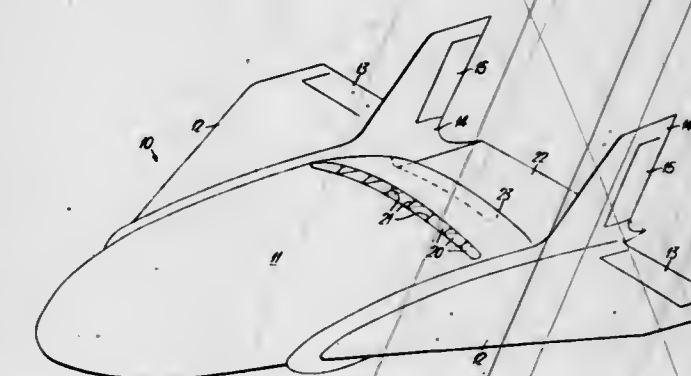
Claims priority, application Great Britain, Aug. 1, 1968,

36876/68

Int. Cl. B64c 1/00

U.S. Cl. 244-36

5 Claims



An aircraft with good noise characteristics has a number of rear-mounted engines which are arranged to suck boundary layer air from the top of the fuselage to convert the latter in its entirety to a lifting body. The tail of the aircraft acts as a noise shield.

3,576,301

DIRECT LIFT CONTROL SYSTEM

Joseph W. Stickle, Hampton, Va.

Filed June 20, 1969, Ser. No. 835,060

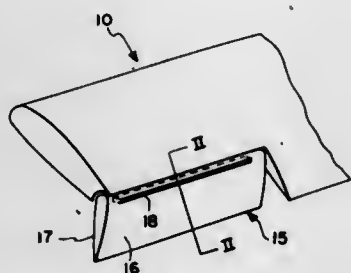
Int. Cl. B64c 21/08

U.S. Cl. 244-42

10 Claims

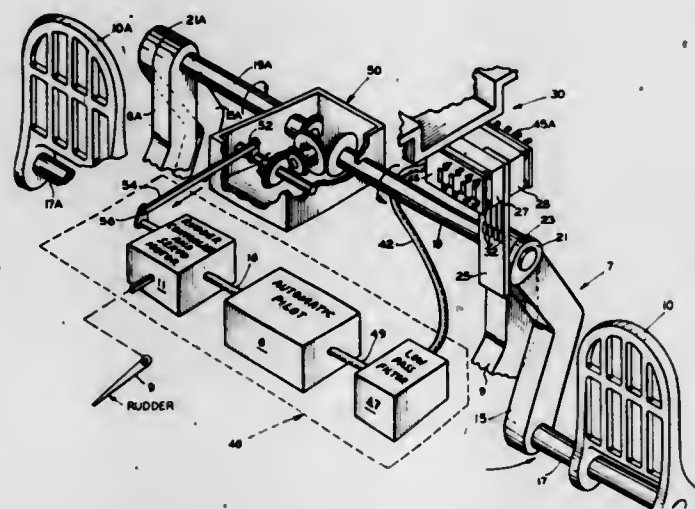
A lift surface for an aircraft. The lift surface having flaps.

Slots formed through the flaps adjacent their leading edge. Closure mechanism for varying the size of the slots to regulate the degree of spoiling of the flap induced lift and the resultant direct lift control.



late the degree of spoiling of the flap induced lift and the resultant direct lift control.

3,576,302
SOLID-STATE POSITION SENSOR FOR SENSING AN ADJUSTED POSITION OF A CONTROL ELEMENT
Raymond D. Palfreyman, Clifton, N.J., assignor to The Bendix Corporation, Teterboro, N.J.
Filed July 10, 1968, Ser. No. 743,660
Int. Cl. B64c 13/04, 13/18
U.S. Cl. 244-83 2 Claims

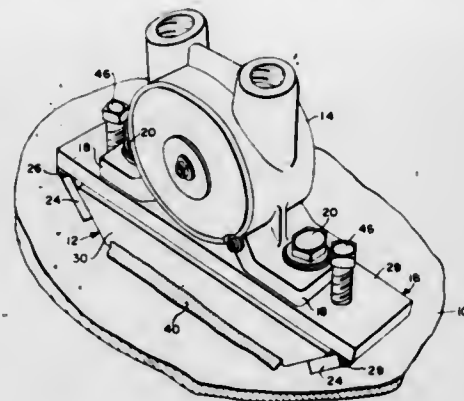


A solid-state position sensor for sensing an adjusted position of a control element for applying information corresponding to the sensed position of the control element to a system for controlling a surface of an aircraft and more particularly the disclosure relates to a solid-state rudder pedal position sensor including strain gages to provide signals corresponding to flexure of an associated spring member by the adjusted position of a rudder pedal to differentially unbalance an electrical bridge and provide an electrical output signal corresponding to the adjusted position of the rudder pedal and which output signal may effectively modify an automatic pilot control system for a control surface or rudder of an aircraft.

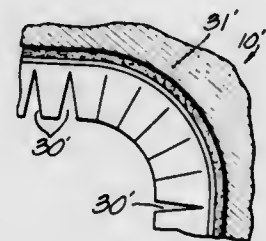
3,576,303
MOUNT FOR VIBRATORS
Carl G. Matson, 401 E. Central Blvd., Kewanee, Ill.
Filed May 27, 1969, Ser. No. 828,258
Int. Cl. F16m 13/00
U.S. Cl. 248-14 1 Claim

A mount for attaching vibrators to containers such as concrete molds and the like is made up of a plurality of walls affording a boxlike structure in which the end walls are divergent so as to receive the matching legs of a secondary element

ment which may be part of or an attachment to the vibrator, together with clamp screws that draw the mating surfaces

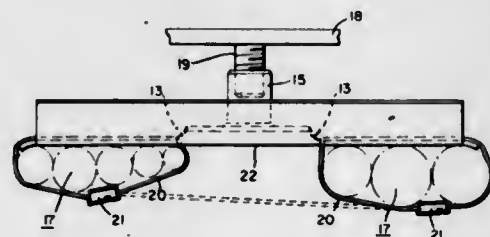


3,576,304
MOUNTING ACCESSORY AND METHOD FOR MOUNTING TUBING AND CABLEING
Gorge W. Gillemot, 2615 Naples Ave., Venice, Calif., and John T. Thompson, 19201 Wells Drive, Tarzana, Calif.
Filed Sept. 9, 1968, Ser. No. 758,373
Int. Cl. F16l 3/08
U.S. Cl. 248-54 1 Claim



A cable and tube mounting accessory conveniently extruded from flexible elastomeric material and having one or more generally C-shaped channels thereacross. The channels are sized to fit a cable or tube reasonably snugly after being deformed for the assembly operation. One exterior face of the accessory is preferably flat and equipped with one of a pair of separable interlocking strips one of which exhibits a multiplicity of barbs and the other a cooperating mass of intertwined fibers engageable with the barbs. The second strip is coated with adhesive, as a pressure sensitive type, for convenience in securing the same to any type of supporting surface, against which it is desired to support cabling, conductors, tubing or the like.

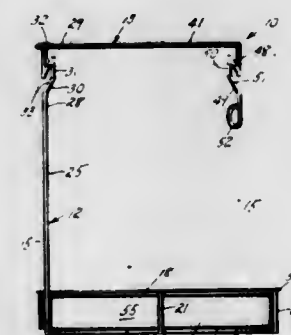
3,576,305
CABLE HANGER
Robert Louis Welsh, and William Russell Bodine, Cherry Hill, N.J., assignors to Omark Industries, Inc., Portland, Oreg.
Filed Nov. 1, 1968, Ser. No. 772,560
Int. Cl. F16l 3/22
U.S. Cl. 248-68 3 Claims



A cable hanger for banding and supporting a cable run which includes an elongate planar channel member having a

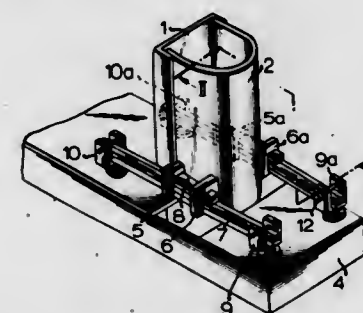
bottom wall and two sidewalls. Two apertures are disposed centrally in the bottom wall of the channel member and the wall portion between the apertures is raised above the remaining bottom wall surface to provide a tunnel through which the band passes as it extends through the channel and around the cables to be secured. Partable hanger attachment means are secured to the raised portion of the bottom wall out of interference with the band and can thus support the channel member along its vertical axis. A compound bend is provided in the sidewalls of the channel member to reinforce the sidewalls.

3,576,306
GARBAGE BAG HOLDER
Leon D. Grebow, 3580 Hudson Manor Terrace, Riverdale, N.Y.
Filed Mar. 5, 1969, Ser. No. 804,403
Int. Cl. B65b 67/12
U.S. Cl. 248-97 2 Claims



A wire frame garbage bag holder for use with resiliently expandable garbage bags of synthetic resinous type. Means provided for maintaining the free upper edge of the bag in tensed relation, so that it does not slip with respect to the device under load.

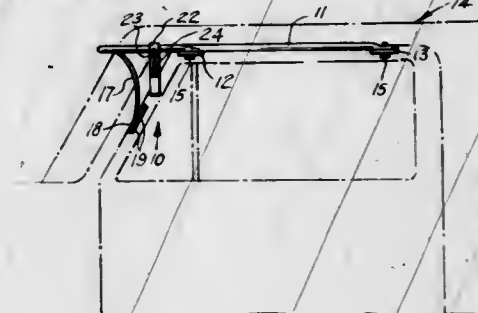
3,576,307
HYDRAULIC PIT PROP MOUNTING IN A ROOF SUPPORT SYSTEM
Gunter Bell, Heinrichstrasse 14, 4351 Horneburg, and Willy Watermann, Falterweg 22, 46 Dortmund-Berghofen, Germany
Filed Nov. 12, 1968, Ser. No. 774,858
Claims priority, application Germany, Nov. 24, 1967, Mar. 16, 1968, P 15 83 111.5; P 16 08 284.1
Int. Cl. E21d 15/00
U.S. Cl. 248-357 7 Claims



A means for tiltably mounting a hydraulic pit prop in a roof support system, particularly at a long wall face, comprising a guide means for the reception of the prop and a solebar or soleplate upon which the guide means is tiltably mounted in a ball-and-socket joint and to which it is attached, said guide means being secured to the solebar or soleplate by attaching two substantially parallel spring elements, of which one is provided on each side of the guide means, to bearings affixed to the guide means and by locating the ends of said spring elements in holders secured to said solebar or

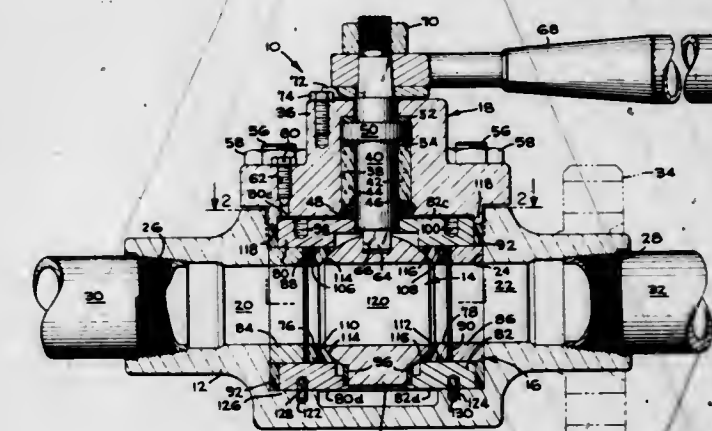
soleplate. The spring elements may consist of bundles of spring rods.

3,576,308
TRUCK MIRROR AND MOUNT
Arthur D. Baker, Jr., 1023 W. Baetz Blvd., San Antonio, Tex.
Filed Jan. 13, 1969, Ser. No. 790,657
Int. Cl. A47g 1/24
U.S. Cl. 248-476 2 Claims



A mirror device for trucks giving a clear and unobstructed view to the driver. This mirror has an arcuate and tubular frame which is horizontally secured to the truck's door by a pair of brackets and an auxiliary support bracket. The mirror is suspended within the arcuate frame and is adjustable up and down as well as angularly.

3,576,309
TOP ENTRY BALL VALVE
John P. Zawacki, Houston, and Ervin A. Buchta, Katy, Tex., assignors to FMC Corporation, San Jose, Calif.
Filed Feb. 19, 1969, Ser. No. 800,440
Int. Cl. F16k 5/06
U.S. Cl. 251-174 9 Claims

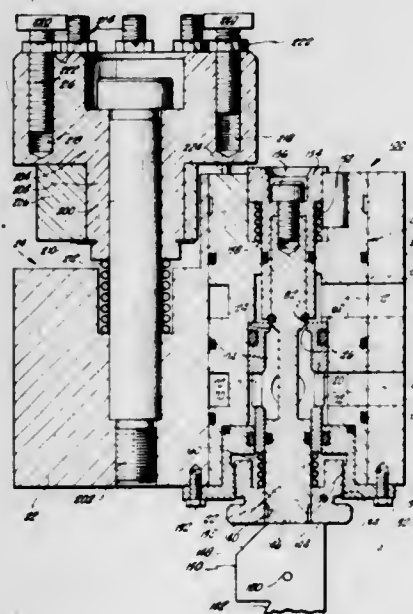


A rotary-type top entry ball valve, with a ball closure element and a seat assembly that are installed in the valve body and removed therefrom as a unit. The seat assembly includes annular ball element seats, retainers for supporting the seats and ball element, springs for biasing the seats into sealing engagement with the ball element, seat inserts supporting the springs and assisting in sealing the assembly to the valve body, and an assembly retainer sleeve with a dual function of holding the seat assembly together as a unit and providing a seal between it and the valve.

3,576,310
CONTROL ASSEMBLY
Thomas D. Newton, Downey, Calif., assignor to Allied Pacific Manufacturing Company, Compton, Calif.
Division of Ser. No. 709,472, Feb. 29, 1968 filed Sept. 5, 1969, Ser. No. 855,568
Int. Cl. F16k 31/524
U.S. Cl. 251-263 2 Claims

A valve assembly for controlling hydraulic fluid flow to hydraulic cylinders in pattern-following machine tools. A

control valve and a turret stop assembly are mounted on a compound slide assembly. The control valve is manually opened to initiate movement of the pattern-following tool by hydraulic fluid flow through the valve. Adjustment of the

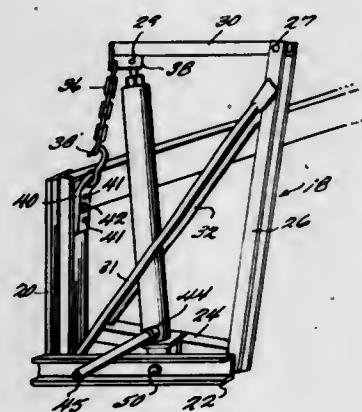


amount of valve opening controls movement rate. Turret stop assembly movement, in response to contact with a stop on the fixed base of the slide assembly, shuts off the control valve.

3,576,311 POST EXTRACTOR

Jack O. Cartner, 1612 Blaine Ave., Cambridge, Ohio
Filed Nov. 18, 1968, Ser. No. 776,698
Int. Cl. E21b 19/00; B66f 3/00
U.S. Cl. 254-30

4 Claims



A light weight, simple, effective, hydraulically operated device for dislodging and extracting poles or similar structures from the ground. In one embodiment, a hydraulically operated piston pulls directly upward on a chain or strap directly attached to the post or pole to be dislodged while an arm attached to both the chain and piston and a frame allowing the arm to pivot as the post is pulled upward operate to minimize side forces on the piston arm. An adapter, for pulling long poles that have holes only near the top is also disclosed.

3,576,312 METHOD AND APPARATUS FOR FILLING CONTAINERS

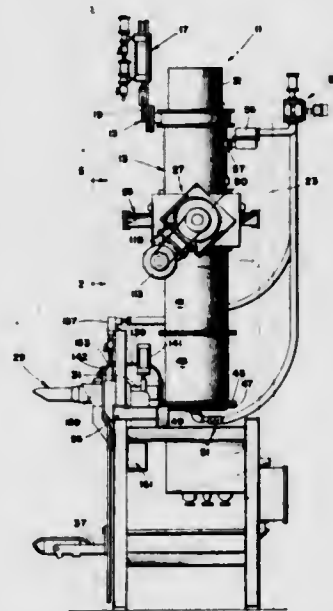
Thomas B. Sturges, Menlo Park, Calif., assignor to Cherry-Burrell Corporation, Chicago, Ill.
Filed Apr. 3, 1969, Ser. No. 813,112
Int. Cl. B01f 11/00

U.S. Cl. 259-2

14 Claims

A method and apparatus for filling containers, such as valve bags, with particulate material that is considered dif-

ficult to package. An inlet valve provides access to the top of a vertically disposed hopper containing a lower porous pad through which fluidizing air is injected. A horizontal filling spout extends through the sidewall near the hopper bottom,



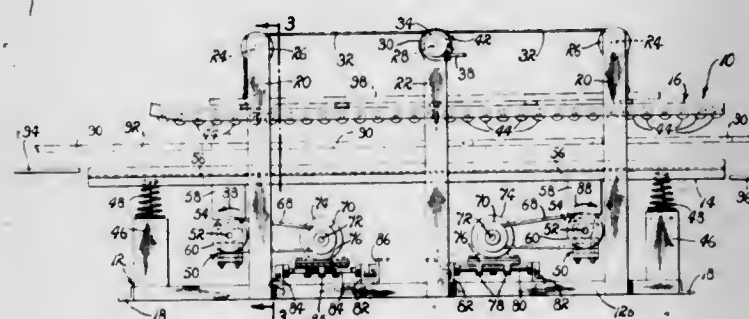
and additional air is injected into the spout and also into the upper portion of the hopper. A vibrator associated with the hopper at a location above the longitudinal center thereof applies lineal vibration to the hopper, preferably along a line at an angle to the horizontal between 35° and 55°.

3,576,313 APPARATUS FOR SETTLING THE CONTENTS OF CONTAINERS

Edward J. Derderian, 1735 Ventura Ave., Fresno, Calif.
Filed Feb. 20, 1969, Ser. No. 800,894
Int. Cl. B01f 11/00

U.S. Cl. 259-59

12 Claims



Apparatus for settling the contents of containers and the like including a vertically vibratory platform and a weighted floating cover plate between which the containers pass. The platform is resiliently mounted and is vibrated by a pair of eccentric weights coordinately driven in opposite directions at substantially the same speed of rotation.

3,576,314 MOBILE CONCRETE MIXER WITH FOLDABLE FILLER UNIT

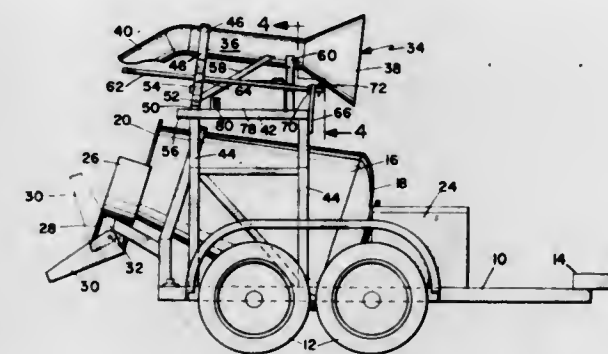
Alfred L. Sannipoli, Escondido, Calif., assignor to Lyco Manufacturing, Inc., Escondido, Calif.
Filed Nov. 20, 1969, Ser. No. 878,322
Int. Cl. B28c 7/04

U.S. Cl. 259-164

8 Claims

A mobile concrete mixer, self-contained and towable by an automobile or other vehicle, is provided with a filler unit which enables the mixer to be filled from the same facilities as large commercial mixer trucks. The filler unit includes a funnel with an elongated neck which, in upright filling posi-

tion, leads into the mouth of the mixer barrel when the mixer is positioned under an overhead filling facility. When not in



use and during transportation, the filler unit folds on top of the mixer barrel, locking means being provided to hold the unit in both positions.

3,576,315 CARBURETOR COLD-START AND WARM-UP SYSTEM

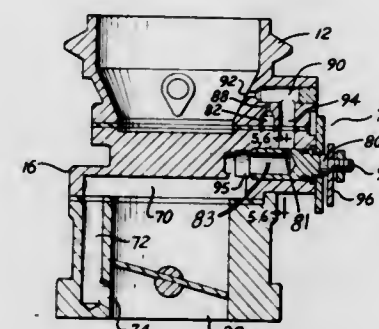
Robert W. Sutton, Grosse Pointe Farms, Mich., assignor to The Bendix Corporation

Filed Apr. 2, 1969, Ser. No. 812,733

Int. Cl. F02m 1/10

U.S. Cl. 261-39

1 Claim



A primer and warmup system for float-type carburetors, in which a fuel enrichment passage connects the float chamber with the induction passage on the engine side of the throttle valve and an air passage connects the fuel enrichment passage with the induction passage near the air intake thereof. A valve in the fuel enrichment passage posterior to the air passage controls the fuel-air mixture formed in the passage to vary the fuel-air mixture supplied to the induction passage in accordance with the engine temperature.

3,576,316 APPARATUS FOR SURFACE AERATION AND CIRCULATION OF LIQUID

Joseph Richard Kaelin, Villa Seeburg, Buochs/Nidwalden, Switzerland

Filed May 20, 1969, Ser. No. 826,162

Claims priority, application Switzerland, May 28, 1968,

7886/68

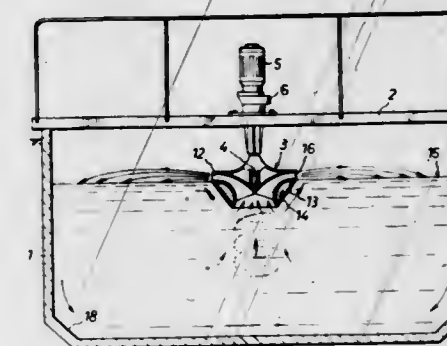
Int. Cl. B01o 47/16

U.S. Cl. 261-91

7 Claims

Apparatus for the surface aeration and circulation of liquid, e.g. for the treatment of sewage comprises an aeration rotor which, in use, is partially submerged in the liquid to be treated and revolves about a vertical axis. The rotor is equipped with a number of flow passageways for the liquid formed between radial blades and spaced upper and lower spaced rotor walls. The flow passageways are curved in their vertical plane by approximately 90° so as to deflect outwardly the liquid entering said flow passageways from below through inlets arranged in a circle around the axis of the rotor the liquid then being discharged radially outwards in

substantially horizontal direction through outlet openings arranged on the outer perimeter of the rotor situated on a larger diameter compared with the diameter on which the inlets are arranged. The outer circumference of the portion of the rotor submerged in the liquid is formed as a straight



frustoconical surface, said lower rotor wall forming a limiting wall of said curved flow passageway and frustoconical surface defining an annular hollow space extending around the rotor to provide for buoyancy in order to reduce the weight of the rotor when immersed in the liquid in operating position.

3,576,317 PACKED TOWER DESIGN

Richard L. Huntington, Hancock County, Ohio (R. #1, Van Buren, Ohio, 45889)

Filed Apr. 7, 1969, Ser. No. 814,063

Int. Cl. B01f 3/04

U.S. Cl. 261-98

3 Claims



The invention is a horizontal crossflow packed bed absorber having a hollow shell and a distributor for distributing liquid downwardly through the packed bed absorber. The shell has corrugated side and bottom walls, an inlet grill and an outlet grill defining a central compartment containing tower packing. The side and bottom wall corrugations are at an angle to both the liquid flow and the gas flow.

3,576,318 FUME CONTROL METHOD AND APPARATUS

Robert W. Spencer, and Robert S. L. Andrews, Rancocas, N.J., assignors to Inductotherm Corporation, Rancocas, N.J.

Filed Apr. 4, 1969, Ser. No. 813,451

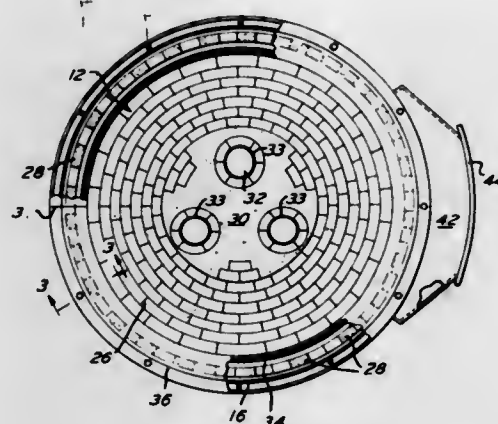
Int. Cl. F23m 5/00, 9/00

U.S. Cl. 263-46

8 Claims

Apparatus and method for controlling fumes in an arc furnace. The fumes are collected by a circumferentially disposed duct whose cross-sectional area increases in the

direction of flow. Fumes are introduced into the duct by ports or spaces in the roof of the furnace with the flow



passage formed by the spaces or ports in the roof decreasing at the same rate as the duct cross-sectional area increases.

3,576,319

CUPULA CHARGING APPARATUS

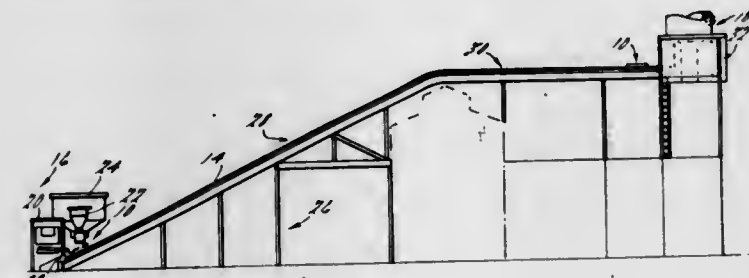
Michael Michaels, Novi, Mich., assignor to Standard Alliance Industries, Inc., Chicago, Ill.

Filed June 16, 1969, Ser. No. 833,331

Int. Cl. F27d 3/10

U.S. Cl. 266-27

18 Claims



A cupula charging apparatus having a hopper mounted beside the stack of the cupula and adapted to receive a measured charge of metal, limestone and coke and to deliver the charge at the proper time through a side opening in the stack. A door hingedly mounted in the opening at the discharge chute of the hopper is movable between vertical and inclined positions to open and close the opening and to control delivery and the pattern of flow of a charge from the hopper in the cupula. A novel skip car delivers a measured charge of materials to the hopper and novel means is provided for dumping a load from the car into the hopper.

3,576,320

METHODS AND APPARATUS FOR TREATMENT OF METALS

Heinrich Faste, Bremen, Germany, assignor to Friedrich Kocks

Filed Nov. 22, 1968, Ser. No. 778,247

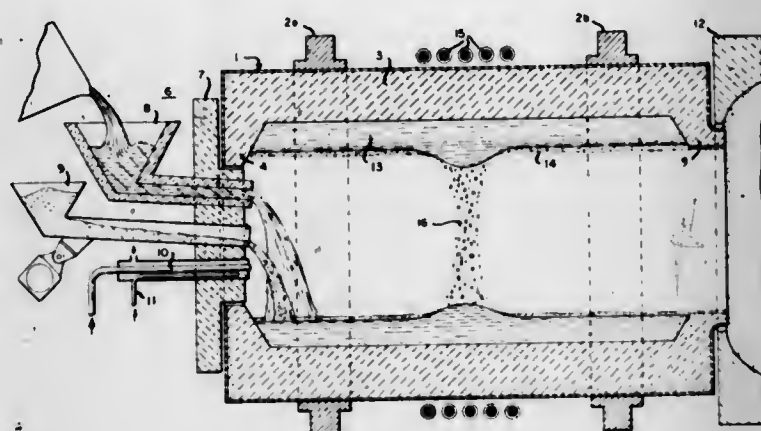
Int. Cl. F27b 7/14

U.S. Cl. 266-36

8 Claims

A method and apparatus are provided for treatment of molten metal with reactive materials by the steps of adding a molten metal and reactive materials to a rotating drum, passing the mixture from one end of the drum to the other while subjecting the same to centrifugal force sufficient to overcome gravity and maintain it in contact with the drum, subjecting said mixture to a radially directed magnetic force intermediate the ends of the drum sufficient to overcome centrifugal force and cause the mixture to fall radially from the drum top and removing the mixture at the said other end of the drum. The apparatus provides a rotating drum, means

for rotating the drum at a speed sufficient to hold the contents therein by centrifugal force on the walls of the drum, feed means for delivering metal and reactive material to the



drum interior at one end, and a magnetic field intermediate the end of the drum creating a radial force on the metal sufficient to overcome centrifugal force.

3,576,321

METHODS AND APPARATUS FOR TREATMENT OF METAL HEATS

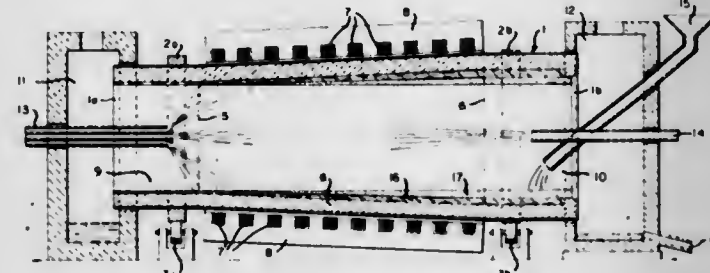
Heinrich Faste, Bremen, Germany, assignor to Friedrich Kocks

Filed Nov. 22, 1968, Ser. No. 778,248

Int. Cl. C21c 5/42

U.S. Cl. 266-36

7 Claims



A method and apparatus is provided for treatment of molten metal to provide higher reaction efficiency between slag and metal by the steps of moving a molten layer of metal in one direction by magnetic impulses and centrifugal motion, applying a layer of slag forming material on the metal layer and moving the same contrary to the direction of the molten metal while reacting the two and collecting the metal and slag at spaced apart points. The apparatus provides a drum rotatable on a horizontal or inclined axis, open at the ends and refractory lined, means for rotating the drum, means for charging the drum at opposite ends, a magnetic field intermediate the ends of the drum urging the metal to flow in one direction against gravity and collecting furnaces at the drum ends.

3,576,322

CARD-FEEDING APPARATUS

Francis A. Goplen, Zumbrota, Minn., assignor to International Business Machines Corporation, Armonk, N.Y.

Filed Jan. 9, 1969, Ser. No. 790,122

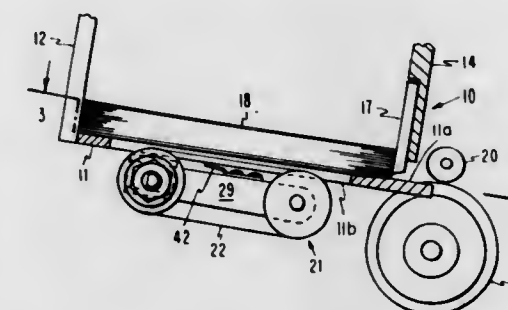
Int. Cl. B65h 3/06

U.S. Cl. 271-41

11 Claims

Apparatus for feeding cards sequentially from the bottom of a card stack including a pair of rolls, which may be termed a feed roll and a second roll, and having a friction belt passing over them with the feed roll being rotatably mounted on an arm which is pivoted on the center of rotation of the second roll so that the friction belt may be moved into forceful contact with the bottommost card of the stack on pivotal

movement of the arm. A friction brake is provided for the feed roll, and the second roll is driven so that the friction belt in the vicinity of the feed roll is moved into contact with the bottommost card of the stack without any rotation of the



feed roll about its own axis; and, subsequently, the force from the friction belt on the feed roll causes the feed roll to rotate about its axis with corresponding movement of the friction belt so that the belt displaces the bottommost card from the stack.

3,576,323

SILHOUETTE FENCING TARGET WITH ADJUSTABLE ARM

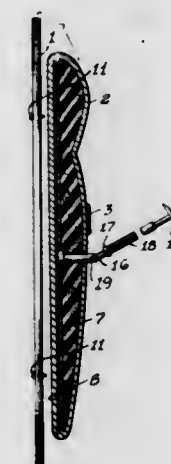
Emil Stanley Pellicer, 6317 Clayton Road, Saint Louis County, Mo.

Filed June 13, 1968, Ser. No. 736,747

Int. Cl. A63b 69/02

U.S. Cl. 273-1

5 Claims



A fencing target made of foam backed vinyl and having the form of a human being is connected to a target base with the target base being movable to a plurality of vertical positions in a support frame. The target base is provided with rollers which engage tracks on the frame, and with bolts which engage holes in the frame. An adjustable arm presenting an opponent's weapon is provided on the target base and extends outwardly therefrom for use in the practice of fencing moves.

3,576,324

ADJUSTABLE BILLIARD CUE BRIDGE

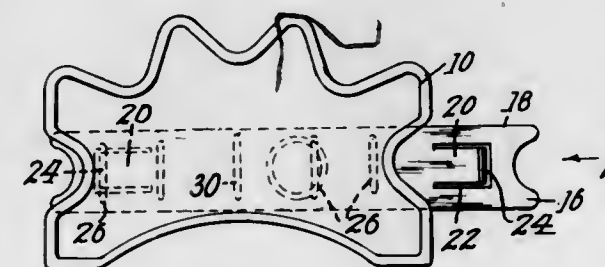
Rodolph Lareau, Fitchburg, Mass., assignor to Extension Bridgehead Inc.

Filed Jan. 13, 1969, Ser. No. 790,810

Int. Cl. A63d 15/00

U.S. Cl. 273-23

3 Claims



An adjustable billiard cue bridge of usual outline, a horizontal slider at the rear face thereof, integral spring fin-

gers on the slider, a series of recesses in the bridge to receive the spring fingers in releasable latching adjusted position.

3,576,325

BASEBALL GAME

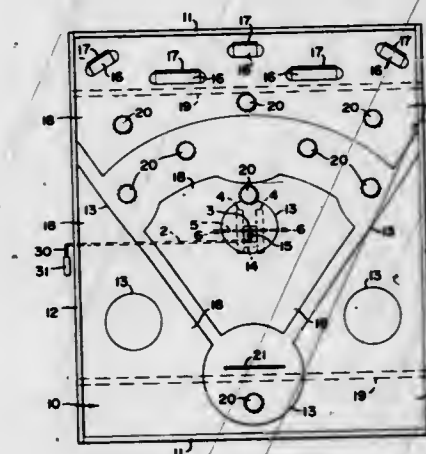
Richard J. Naturale, 3371 Lakeview Blvd., Stow, Ohio

Filed Oct. 16, 1969, Ser. No. 866,833

Int. Cl. A63f 7/10

U.S. Cl. 273-89

9 Claims



A baseball game comprising a playing board having a simulated baseball field indicia thereon including a pitcher's mound and an outfield and a pitching arm pivotally positioned in a slot. The pitching arm is connected to the board by flexible tape which allows both pivotal and tilting movement of the pitching arm. An elongate pitching arm actuating means extends laterally of said board and is slidable on its longitudinal axis and is pivotally secured to the board whereby a ball positioned on said pitching arm can be propelled towards home plate. Bottle caps on the board represent the fielders.

3,576,326

BEARING SEAL AND METHOD OF MAKING SAME

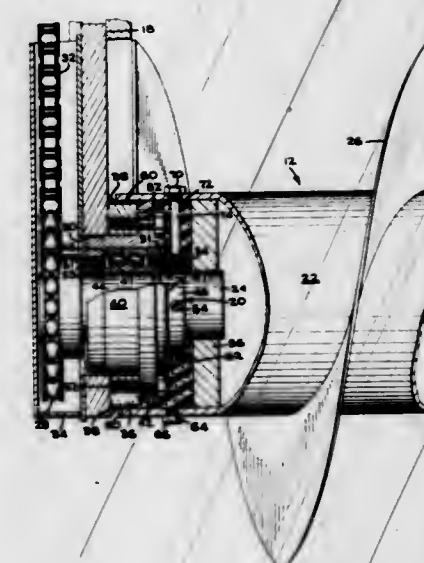
Eugene R. Hafner; Raymond A. Kern, and William D. Shupe, Indianapolis, Ind., assignors to FMC Corporation, San Jose, Calif.

Filed Mar. 10, 1969, Ser. No. 805,564

Int. Cl. F16j 15/02

U.S. Cl. 277-1

3 Claims



A foamed-in-place polyurethane cavity seal is provided to fill the cavity existing at the joint where a rotating auger is journaled in a flanged roller bearing unit. The relatively large diameter tubular outer auger shaft extends axially beyond the point at which an inner drive shaft of the auger enters the bearing unit, said outer tube being disposed around the bearing to substantially enclose it and define the cavity, which is to be filled by the subject polyurethane seal, between the

bearing unit and the inner walls of the outer tube. The cavity seal is made by completely sealing off the cavity, pouring liquid polyurethane through an unplugged access hole in the auger tube, replugging the access hole and allowing the polyurethane to cure and expand within the cavity at room temperature.

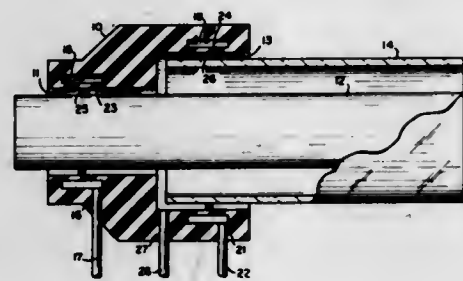
3,576,327

INFLATABLE SEAL FOR FLUID-CONTAINING MEANS
Marvin P. Young, Alexandria, Va., assignor to the United States of America as represented by the Secretary of the Navy.

Filed May 5, 1969, Ser. No. 821,751
Int. Cl. F16j 15/46

U.S. Cl. 277—34.3

6 Claims



This disclosure is directed to a seal including a flexible O-ring housing which creates a uniform pressure for compression of an O-ring at all points along the surface to be sealed. The surface need not be concentric and may vary in diameter because equal pressure will be applied onto the O-ring by a fluid within a circular cavity within the housing near the O-ring. The fluid in the cavity will apply equal pressure onto the O-ring so that the O-ring conforms to the shape of the surface sealed. The O-ring may be on the outer surface or inner surface of the seal body depending on the position of the cavity within the housing relative to the O-ring. This seal is suitable for a high vacuum system and may be made of an insulating material.

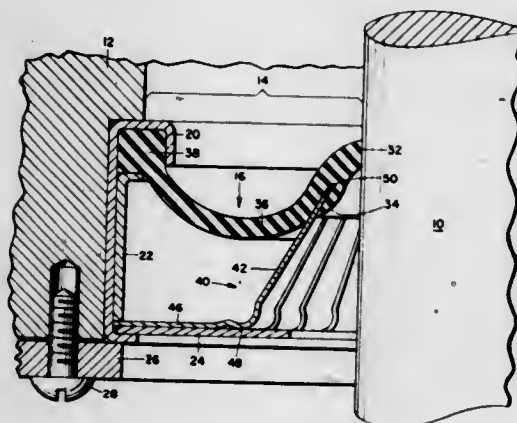
3,576,328

HIGH PRESSURE SEALS
Robert W. Vose, 1528 Piper Road, West Springfield, Mass.

Filed Mar. 22, 1968, Ser. No. 715,229
Int. Cl. F16j 15/32

U.S. Cl. 277—149

6 Claims



Sealing devices cooperant with mechanical members having relatively sliding surfaces for withstanding combinations of high sliding speed and high fluid pressure and for absorbing relatively large normal displacements of the sliding surfaces caused by vibration or mechanical imperfections.

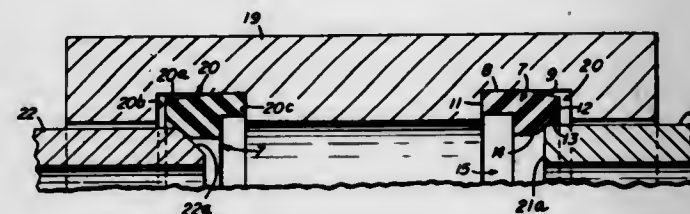
3,576,329 PIPE PACKING JOINT WITH GASKET PROVIDING COMBINED DEFORMATION AND LIP SEALS

Simeon D. Weaver, Birmingham, Ala., assignor to Cement Asbestos Products Company, Woodward, Ala.
Continuation-in-part of application Ser. No. 530,166, Feb. 25, 1966, now abandoned. This application Nov. 26, 1968, Ser. No. 779,098

Int. Cl. F16j 15/48

U.S. Cl. 277—207

1 Claim



A packing joint for complementary male and female pipe sections, having an annular gasket of compressible material adapted to fit within an annular groove in the female section for engagement with the periphery of the inserted male section. The longitudinally central portion of the gasket forms a torus or thickened area for compression between the male and female pipe sections, and its inner periphery at one end is cut away adjacent the torus to provide an annular void which is bounded by the torus and surrounds the male section. The outer periphery of the gasket is provided at both ends with radially thickened annular rims which sealingly engage the inner periphery of the groove in the female section, and the area of the gasket between the rims is provided with a portion of reduced thickness inward of each rim, the peripheries of which reduced portions converge radially outwardly in an apex longitudinally aligned with the rim peripheries. When the male section is inserted, the torus is compressed, and a portion thereof is deflected into lip-sealing engagement with the male section, while the rims at each end of the gasket prevent any rolling or displacement of the gasket during assembly.

3,576,330

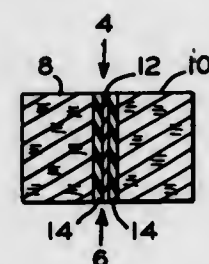
RUBBER METAL LAMINATED GASKET CONSTRUCTION

George E. Gard, Lancaster, Pa., assignor to Armstrong Cork Company, Lancaster, Pa.
Continuation-in-part of application Ser. No. 576,017, Aug. 30, 1966, now Patent No. 3,492,011. This application Jan. 26, 1970, Ser. No. 005,647

Int. Cl. F16k 41/00; F02i 11/00; B65d 53/00

U.S. Cl. 277—235

5 Claims



A metal foil is laminated between two outer pieces of cork gasket material. The metal foil is provided with a rubber coating on at least one side of the foil. The metal foil and its rubber coating extend perpendicularly from the two surfaces meant to be sealed by the gasket.

3,576,331

SKI TOW VEHICLES

Marvin H. Greene, 38 Clove Road, Monroe, N.Y.
Filed June 10, 1969, Ser. No. 831,884

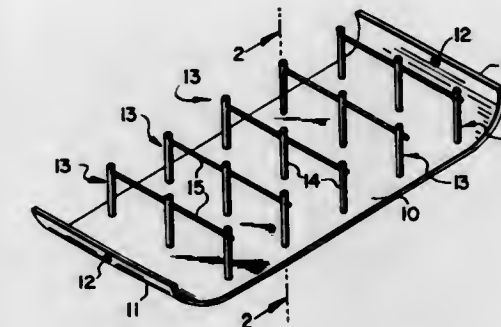
Int. Cl. B62b 13/06, 3/00

U.S. Cl. 280—8

4 Claims

A platform preferably provided with upwardly curved ends is provided with a plurality of longitudinally spaced rows of

transversely spaced posts, the posts of each row having handrails or ropes engaging them. The platform is adapted to be



pulled by a cable or the like and is capable of carrying a large number of skiers with their skis on up a ski slope.

3,576,332

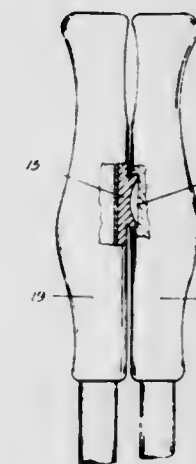
SAFETY SKI POLES PROVIDED WITH GRIPS
Franz Xaver Bruckl, Krottenkopfstrasse 50, 8116 Eschenlohe, Germany

Filed Aug. 12, 1968, Ser. No. 751,957
Claims priority, application Germany, Aug. 17, 1967, P1,578,728.7

Int. Cl. A63c 11/22

U.S. Cl. 280—11.37

3 Claims



Profiled grips of a pair of ski poles have recesses for the embracing fingers and an elevation for supporting the palm of the hand. Said recesses and said elevation are so shaped that one ski pole grip conforms to the left-hand, the ski pole grip conforms to the right-hand and the inside surfaces of the ski pole grips are smooth.

3,576,333

PALLET TRUCK

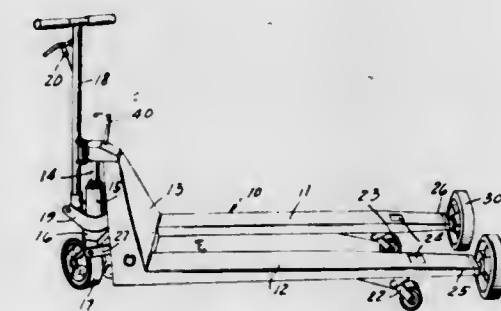
Gunnar H. Danielson, Minneapolis, Minn., and Harold W. Oncken, Hermann, Mo., assignors to Valley Craft Products, Inc., Lake City, Minn.

Filed Mar. 3, 1969, Ser. No. 803,819

Int. Cl. B62b 21/14

U.S. Cl. 280—34

9 Claims



A pallet truck which has projecting forks thereon adapted to extend through material pallets and project beyond the

pallets at both ends and which has detachable wheels for assembly on the ends of the forks with the wheels operable in a plane transverse to the plane of projection of the forks so as to allow lateral movement of the pallet truck.

3,576,334

FLEXIBLE CABLE CONDUIT JOINTS

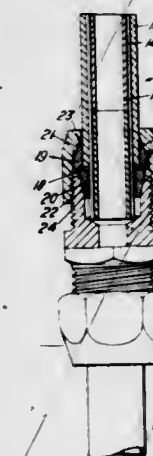
James Frederick Hemens, Redhill, Surrey, England, assignor to Arens Controls Limited, Redhill, Surrey, England
Filed Jan. 28, 1969, Ser. No. 794,568

Claims priority, application Great Britain, Mar. 5, 1968, 10,684/68

Int. Cl. F16l 39/00

U.S. Cl. 285—149

3 Claims



A joint coupling is provided for a flexible cable conduit, which conduit has an inner case and an outer coaxial sheath. The coupling comprises a two-part collet the two parts of which are of different diameters and are disposed in axially consecutive relationship, the part of smaller diameter being lodged in an externally threaded union while the larger diameter part is lodged in a nut received by the union. The collet parts and the union and nut have cooperating conical faces so that as the nut is screwed on to the union both collet parts are contracted.

3,576,335

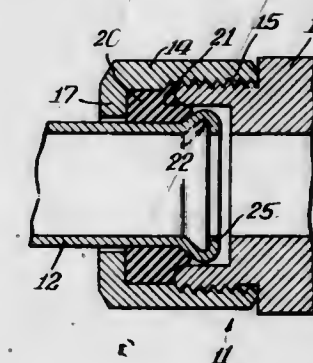
FLEXIBLE TUBE CONNECTION

Leonard J. Kowal, Prospect Heights, and Fritz A. Delander, Beverly Hills, Ill., assignors to I-T-E Imperial Corporation
Filed Apr. 18, 1969, Ser. No. 817,308

Int. Cl. F16l 21/00

U.S. Cl. 285—233

15 Claims



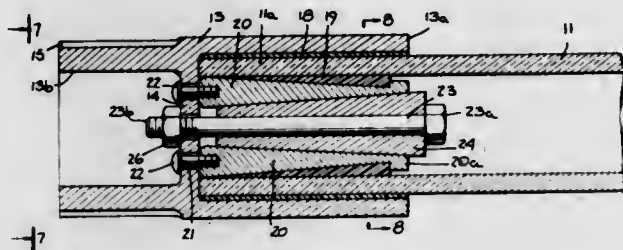
A tube connection wherein the tube end is provided with an enlargement for positively retaining the tube end in a fitting having a resilient annular seal member received between the enlargement and a flange of the nut member. The tube end enlargement may be secured to the tube end or may be formed in the tube end such as by a conventional first step of a double flare operation. The fitting flanged outer portion effectively limits the outward movement of the tube end by engagement of the enlargement therewith in the event that the tube end is drawn outwardly through the seal member.

3,576,336 FORCE TRANSMITTING SYSTEM

Edwin C. Uhlig, deceased, South Bend, Ind., and Doris L. Uhlig, Administratrix, Wallingford, Conn., assignors to Uniroyal, Inc., New York, N.Y.
Filed Nov. 19, 1969, Ser. No. 878,047
Int. Cl. F16d 1/06

U.S. Cl. 287-124

19 Claims



A force transmitting system including a cylindrical fiber-reinforced resin tube to which stress is transferred simultaneously via both the outside and inside surfaces of the tube, is disclosed. The system utilizes a drivable fitting which includes an external rigid coupling sleeve and an internal radially expandable circumferential arrangement of elongated wedge elements, defining between the former and the latter an annular space in which one end region of the tube wall can be received and radially clamped. Distribution of stress transfer over the entire clamped portion of the tube is provided for by means of a pair of substantially coextensive, circumferentially continuous layers of elastomeric material overlying the outside and inside tube surfaces, respectively, the outer elastomer layer being of uniform thickness throughout its expanse, and the inner elastomer layer increasing in thickness in the direction away from the open tube end to match the increase in the width of the space defined between the inner tube surface and the outer surface of the set of tapering wedge elements.

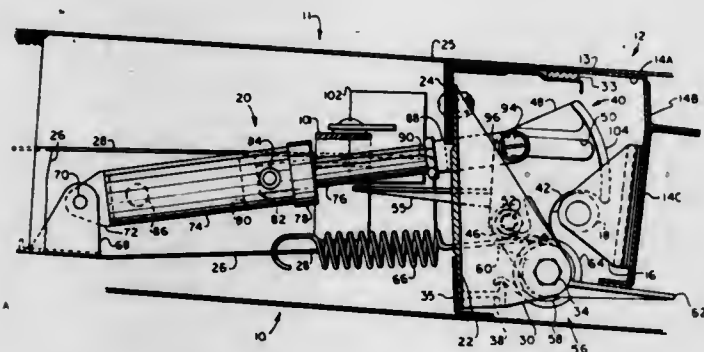
The foregoing abstract is not to be taken either as a complete exposition or as a limitation of the present invention, and in order to understand the full nature and extent of the technical disclosure of this application, reference must be had to the following detailed description and the accompanying drawings as well as to the claims.

3,576,337 LOCKING SYSTEM

Robert L. Gudde, Santee, Calif., assignor to Rohr Corporation, Chula Vista, Calif.
Filed Mar. 21, 1969, Ser. No. 809,279
Int. Cl. E08c 3/06

U.S. Cl. 292-201

10 Claims



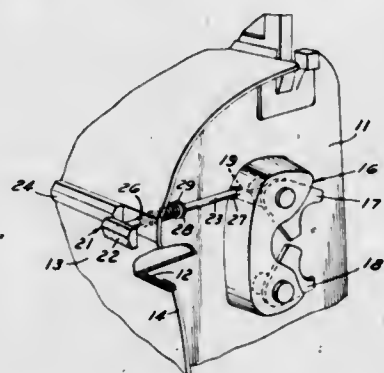
A movable member is retained in a predetermined position by means of a latch which is engageable with a catch on said member. The drive shaft of a pressure cylinder is connected to the latch and moves it to a retracted position when driven in one direction, thus permitting movement of the aforesaid member away from said predetermined position thereof. A latch retainer is arranged to retain the latch in its retracted position until the movable member contacts an arm of the latch retainer as the member returns to said predetermined position.

3,576,338 DOOR EDGE GUARD

Emmett J. Horton, Dearborn, Mich., assignor to Ford Motor Company, Dearborn, Mich.
Filed Nov. 19, 1969, Ser. No. 878,124
Int. Cl. E05c 3/28

U.S. Cl. 292-213

4 Claims



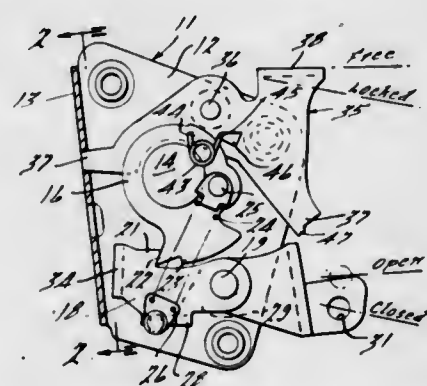
An edge guard mechanism for an exposable edge of a vehicle door. A protective bumper is extendable outwardly from the edge of the door into a protective position when the door is open. The bumper is mounted on a stem which is actuated by a cam means mounted to and movable with a movable portion of the door latch mechanism.

3,576,339 DOOR LATCH MECHANISM

Heinz Grittner, Leverkusen, Mathildenhof, Germany, assignor to Ford Motor Company, Dearborn, Mich.
Filed Nov. 10, 1969, Ser. No. 875,158
Claims priority, application Germany, Nov. 20, 1968, P1,809,979.1
Int. Cl. E05c 3/26

U.S. Cl. 292-216

2 Claims



A door latch mechanism having a latch element fixedly coupled to a ratchet plate, a pawl means adapted to hold the ratchet plate and thus the latch element in latched condition, a locking lever adapted to block movement of the pawl means to ratchet plate disengaged position, characterized in that the ratchet plate and locking lever are coupled to each other by a toggle spring effective to transmit ratchet plate movement to the locking lever if the latter is placed in pawl-blocking position with the latch element in unlatched condition and the latch element is moved to latched condition. The locking lever thus is normally automatically restored to pawl-nonblocking position, but the automatic restoration can be negated by at least partial actuation of an external pawl means operator which creates an interference between the pawl means and locking lever sufficient to override the force-transmitting capability of the toggle spring.

3,576,340 LATCH FOR DISC PACK PROTECTIVE COVER

Robert S. Jones, Sunnyvale, and Jerry M. Long, Livermore, Calif., assignors to Data Technology Corporation, San Jose, Calif.
Filed July 3, 1969, Ser. No. 838,985
Int. Cl. B65d 45/00; E05c 7/00, 9/12

U.S. Cl. 292-256

11 Claims

A latch is disclosed for remotely engaging and disengaging the bottom cover plate of a protective casing for computer

disc packs. Typically, the disc pack is fastened to the upper cover of the protective casing. Thereafter, the cover and attached disc pack are lowered so that the end of a threaded shaft protruding from the disc pack enters a latch on the bottom cover plate. At least one pawl interior of the latch engages the threads of the shaft fastening the bottom cover plate across the underside of the upper cover, completely en-

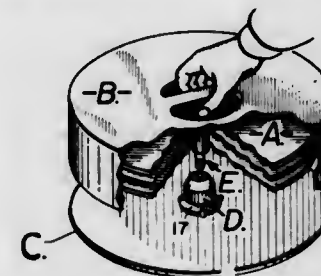
ble and extends beyond the end of the shaft to a point between the jaws. A cylinder mounted on the end of the rod forces the jaws open when the rod is moved in one direction and allows the jaws to close when the rod is moved in the other direction.

3,576,343 GRIPPING TONGS

Sven-Eric Juhlin, Gustavsberg, and Henrik Carl Wilhelm Wahlforss, Stockholm, Sweden, assignors to A. B. Gustavsbergs Fabriker, Gustavsberg, Sweden
Filed Aug. 27, 1969, Ser. No. 853,283
Claims priority, application Sweden, Aug. 30, 1968, 11,686/68
Int. Cl. B25b 3/00

U.S. Cl. 294-100

3 Claims



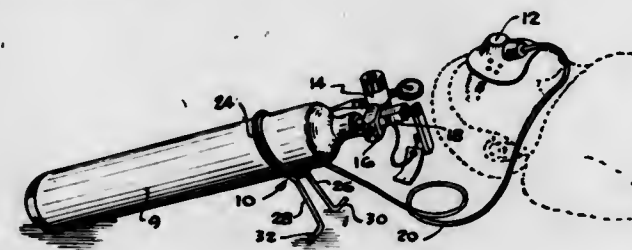
casing the disc pack. Disengagement of the bottom cover plate is effected by forcibly lowering the upper cover and attached disc pack towards the bottom cover plate. This causes the shaft of the disc pack to actuate the retraction of the pawl and release the bottom cover plate of the protective casing when the disc pack and upper cover are thereafter raised.

3,576,341 CYLINDER HANDLE AND SUPPORT

George L. Hammon, Oakland, Calif., assignor to Chemetron Corporation, Chicago, Ill.
Filed Apr. 1, 1969, Ser. No. 825,479
Int. Cl. A47j 45/00

U.S. Cl. 294-31.2

2 Claims



A handle for a cylindrical container having a spirally wound, spring wire coil and grips extending from the ends of said coil to accommodate the hand of a person for carrying the container, and a support including spaced coil members having extending arms carrying fastening members, said arms adapted to slide into a tube for preventing the rotation of the coil members about the fastening members.

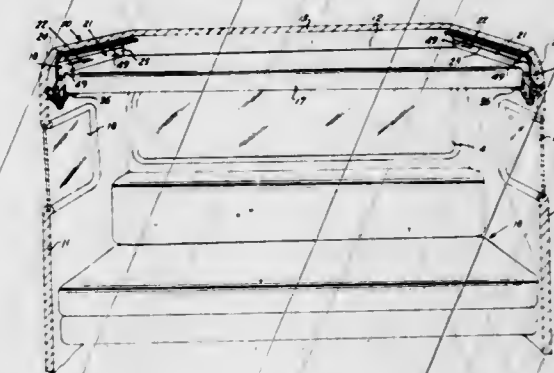
Tongs having a gripping member provided with jaw members so adapted that when the tongs are manipulated by drawing the gripping members into a chuck they are moved together to grip the object selected. Said gripping member is mounted on a journal in an axial bore in the chuck and the shape of the forward portion of the bore is such that when the journal is moved into this portion of the bore, the gripping member is able to turn about its center axis. The rear end of said bore is provided with locking means which prevent turning of the gripping member when the journal is moved into the rear, inner portion of said bore.

3,576,344 FOLDABLE SUPPORT APPARATUS FOR THE UPPER BED DECK OF A MOBILE HOME UNIT

Elmer K. Hansen, 801 S. Martha, Sioux City, Iowa
Filed Mar. 14, 1969, Ser. No. 807,260
Int. Cl. B60p 3/34

U.S. Cl. 296-23

4 Claims



A pair of foldable support structures carried on the ceiling wall of the body of a mobile home vehicle are arranged at opposite ends of the upper deck to support the upper deck for movement to an elevated horizontally disposed storage position adjacent the ceiling wall and to a lowered horizontal position suspended from the ceiling wall. Each support structure includes a mounting plate attachable to the ceiling wall and a pair of pivoted lever assemblies, interconnected for pivotal movement together, with one of their ends pivotally supported on the mounting plate and the other of their ends pivotally connected to an end of the upper deck. The lever

3,576,342 LITTER PICK-UP TOOL

Eugene A. Page, 43 Estrella, Tustin, Calif.
Filed June 9, 1969, Ser. No. 831,504
Int. Cl. B25b 9/00

U.S. Cl. 294-50.8

2 Claims



A pair of normally closed spring jaws are mounted on one end of a hollow shaft. A rod within the shaft is axially mov-

assemblies are vertically extended to suspend the upper deck from the ceiling wall and are foldable inwardly toward each other to positions extended transversely of the upper deck to store the upper deck adjacent the ceiling wall.

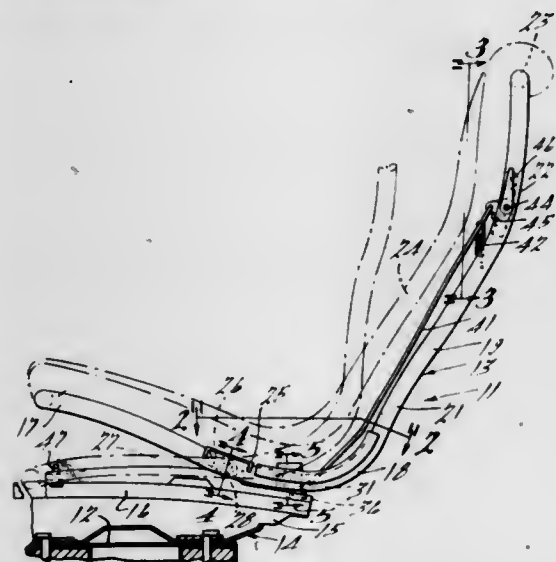
3,576,345

VEHICLE SEAT ASSEMBLY

Charles Haddad, Allen Park; Theodore R. Lent-Koop, Dearborn, and Robert W. Riley, Taylor, Mich., assignors to Ford Motor Company, Dearborn, Mich.
Filed Apr. 23, 1969, Ser. No. 818,589
Int. Cl. B60n 1/08, 1/02

U.S. Cl. 297-326

2 Claims



A vehicle seat assembly having a contoured tubular frame pivotally supported on upper slidable members of spaced seat track units. The locus of the pivot axis is normal to the direction of movement of the seat on the track units and forward of the center of gravity of the occupied seat so that the latter tends to tilt rearwardly. Stop means determine the at rest tilted position and releasable latch means holds the seat against the stop means.

3,576,346

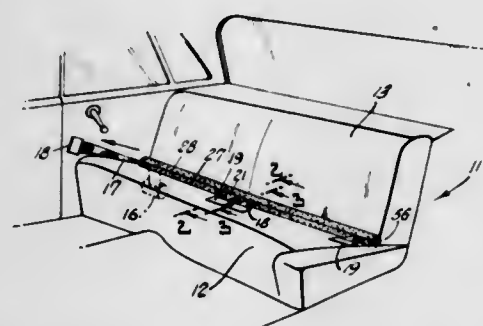
AUTOMOBILE SAFETY BELT RETAINER

Seymour M. Hutchinson, Plainview, N.Y., assignor to Adrian N. Spitz, Massapequa, fractional part interest to each and I. Jordan Kunik, New York, N.Y., fractional part interest to each

Filed June 13, 1969, Ser. No. 832,934
Int. Cl. A62b 35/60

U.S. Cl. 297-385

7 Claims



Automobile seatbelt retaining device for preventing complete retraction of belt buckle and belt clamp from top of automobile seat and out of reach of the passenger.

3,576,347

VEHICLE SEAT ASSEMBLY

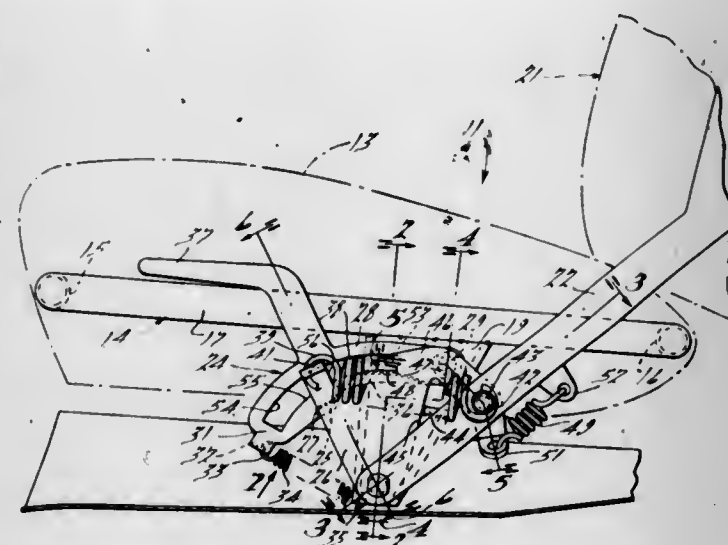
Lloyd R. Vivian, Birmingham, and Karl Budde, Detroit, Mich., assignors to Ford Motor Company, Dearborn, Mich.
Filed June 12, 1969, Ser. No. 832,686
Int. Cl. A47c 3/00; B60n 1/02

U.S. Cl. 297-383

9 Claims

A vehicle seat assembly comprising a cushion and a backrest forwardly swingable over the cushion. A two-stage

latch mechanism interposed between the cushion frame structure and a backrest support arm includes a control lever operable for first stage release of the latch mechanism to un-



lock the backrest for forward tilting movement and further operable for second stage release of the latch mechanism sequentially of the first stage to permit angular adjustment of the backrest.

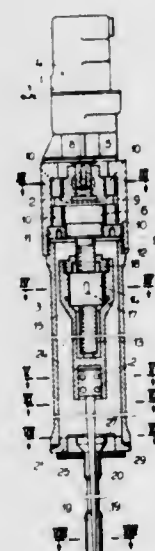
3,576,348

ROCK SPLITTING APPLIANCE

Bruno Lutz Zielinski, Friedrichshafen, Bodensee, Germany, assignor to Demag Aktiengesellschaft, Duisburg, Germany
Filed Mar. 6, 1969, Ser. No. 806,779
Claims priority, application Germany, Mar. 7, 1968, P 16 52 532.9
Int. Cl. E21c 37/04

U.S. Cl. 299-23

7 Claims



A rock splitting appliance includes a cylindrical casing having a carrier, for a wedge shape speaker, axially displaceable therein, the spreader cooperating with a pair of semicylindrical pressure shells fixed against axial movement in the bottom end of the casing but being radially displaceable. A motor on the upper end of the casing has its power transmitted to the spreader through an intermediate drive, the intermediate drive preferably comprising a screw rotatable by the motor and a nonrotatable nut threaded on the screw and secured to the carrier for the spreader.

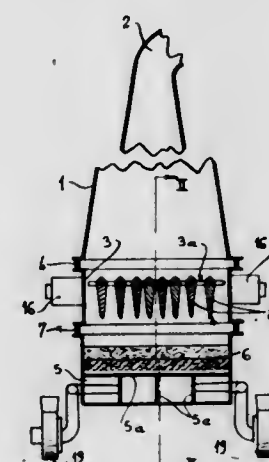
3,576,349

APPARATUS FOR THE MANUFACTURE OF WOOD FIBRE PANELS

Andre Mark, 54, Cours Lafayette, Lyon, Rhone, France
Filed Apr. 24, 1969, Ser. No. 818,984
Claims priority, application France, May 3, 1968, 49,985
Int. Cl. B65g 53/04

U.S. Cl. 302-12

6 Claims



In an apparatus for the formation on a pervious conveyor band of a cushion of wood fibers entrained by an airstream, the regular distribution of the fibers across the width of the band is effected by a series of longitudinal stream-lined depending blades which define adjustable intermediate passages above the band within a vibrating distribution box. The air chest on the perforated upper side of which the band circulates, has its inner space divided into a number of separate chambers connected with at least one suction line through individual valves which permit of distributing the negative pressure below the band in the longitudinal and/or in the transverse direction.

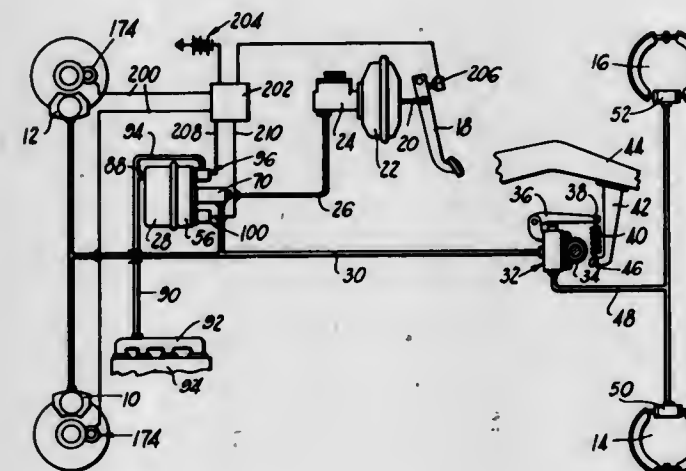
3,576,350

ANTISKID SYSTEM

Lester J. Larsen, South Bend, Ind., assignor to The Bendix Corporation
Filed Aug. 29, 1968, Ser. No. 756,259
Int. Cl. B60t 8/08, 8/26

U.S. Cl. 303-21

5 Claims



A means to regulate hydraulic system pressure based upon a function of the work produced by one set of actuators and having a device to monitor the pressure from said means to another set of actuators as a function of the comparison of their work required with the work done by the one set of actuators.

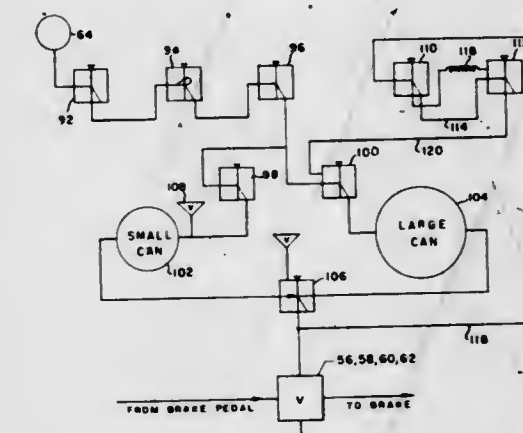
3,576,351

BRAKE CONTROL SYSTEM

David Collins, Clawson, Mich., assignor to North America Rockwell Corporation, Pittsburgh, Pa.
Filed June 4, 1969, Ser. No. 830,463
Int. Cl. B60t 8/06, 8/12

U.S. Cl. 303-21

7 Claims



A fluidics control system for a vehicle brake system in which the normal operator-controlled braking effort is modulated in response to a condition of incipient or actual wheel lock to limit the braking effort to a level just below that which will cause the wheels to lock.

A fluidics system detects the incipient or actual wheel lock and generates a signal which reduces the braking effort at the slipping wheel or wheels to the desired level.

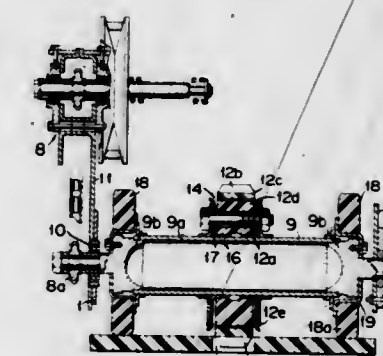
3,576,352

ENDLESS BELT TRACTION VEHICLE

Tadao Sato, Fujisawa-shi, Kanagawa-ken, and Yutaka Masaoka, Shizuoka-ken, Japan, assignors to Yamaha Hatsudoki Kabushiki Kaisha, Hamakita-shi, Shizuoka-ken, Japan and Yokohama Rubber Co., Ltd., Tokyo, Japan
Filed Mar. 28, 1969, Ser. No. 811,442
Claims priority, application Japan, Mar. 30, 1968, 43/25109
Int. Cl. B62d 55/12

U.S. Cl. 305-35

9 Claims



At least one of sprocket wheels provided in an endless-belt traction vehicle involves an outer ring of wear-resistant plastics material, and an inner ring of natural or synthetic elastomeric resin having an axial bore into which is securely inserted an axle carried on the vehicle body. Said sprocket wheel is attached to the axle by means of fixing members with its flexibility preserved with respect to the axle.

3,576,353

CONNECTING ROD BEARING

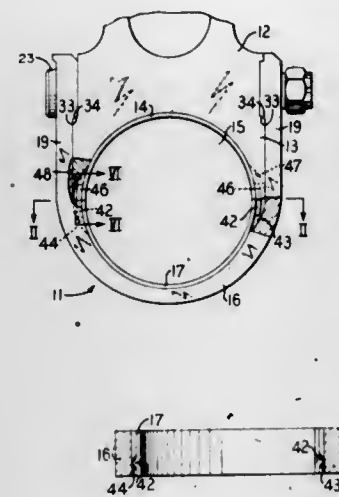
Noble G. Barker, Pekin; Charles N. Fangman; Walter R. Gutzwiller, and Marion J. Witzenburg, Peoria, Ill., assignors to Caterpillar Tractor Co., Peoria, Ill.
Filed Apr. 25, 1969, Ser. No. 819,230
Int. Cl. F16c 13/00; G05g 1/00

U.S. Cl. 308-15

4 Claims

A connecting rod bearing providing with V-shaped tabs for

accurately aligning and locking the bearing half shells to a



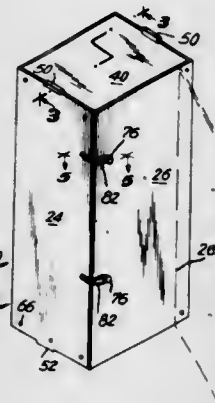
strap type bearing cap and connecting rod end.

3,576,354

KNOCKDOWN CLOSETS

Harry Stone, Forest Hills, and Sol Stone, Hewlett, N.Y.,
assignors to Roseth Corporation
Filed May 8, 1969, Ser. No. 823,091
Int. Cl. A47b 43/00, 47/00
U.S. Cl. 312-257R

6 Claims



A knockdown closet composed primarily of bodies of relatively rigid sheet material which are suitably scored so that they can be folded. The largest body of sheet material forms the rear and side walls of the closet as well as a swingable front wall which acts as a door. Upper and lower bodies of sheet material respectively form the upper and lower walls of the closet and are releasably fastened to the first body at its upper and lower ends. A releasable holding device serves to releasably hold the door in its closed position. Brackets extend into the closet next to the sidewalls at the region of the upper ends thereof, and a hangar rod extends between and is carried by these brackets. With respect to a horizontal plane situated midway between the upper and lower ends of the assembly of the bodies of sheet material, the entire structure is symmetrical so that it can be inverted to change the door from a right-hand door to a left-hand door.

3,576,355

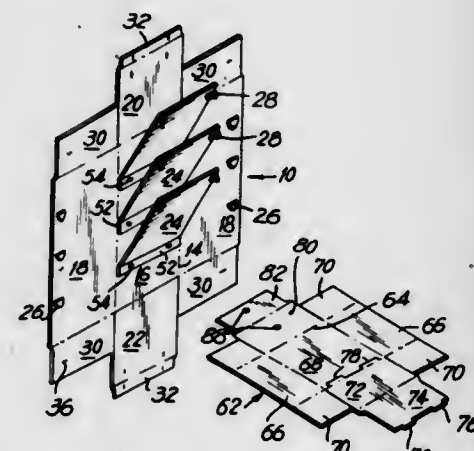
KNOCKDOWN CHEST

Harry Stone, Forest Hills, and Sol Stone, Hewlett, N.Y.,
assignors to Roseth Corporation
Filed May 8, 1969, Ser. No. 823,092
Int. Cl. A47b 43/00, 47/00
U.S. Cl. 312-258

7 Claims

A knockdown chest capable of being transported in a relatively flat condition while at the same time capable of being set up to form a chest having slidable drawers. The chest includes a main body of substantially rigid sheet material formed with score lines enabling this body to be folded to form a back wall, opposed sidewalls, and top and bottom

walls of the chest. A plurality of flaps are fixed to the back wall and swingably extend forwardly therefrom to be supported in horizontal planes, respectively, by the sidewalls, so as to form supports on which the several drawers are respectively slidable. These drawers themselves are in the form of



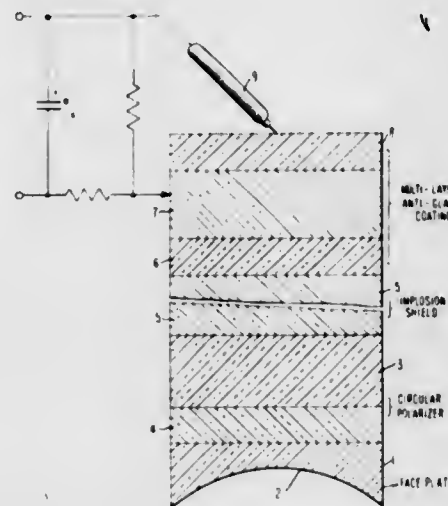
knockdown units capable of assuming a flat condition while having score lines enabling them to be folded into the drawers which are slidable on the flaps. These drawers include a lowermost drawer which is slidable on the bottom wall beneath the lowest flap.

3,576,356

ANTIGLARE COATING FOR CATHODE-RAY TUBE
USED WITH CAPACITIVE COUPLED VOLTAGE PEN
Clifton E. Hyman, Kingston, and George M. Krembs, Hyde
Park, N.Y., assignors to International Business Machines
Corporation, Armonk, N.Y.
Filed Jan. 14, 1969, Ser. No. 790,951
Int. Cl. G02b 27/28

U.S. Cl. 350-156

4 Claims



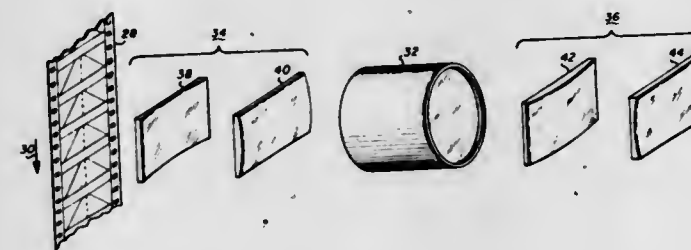
A multilayer optical transparent coating in conjunction with a circular polarizer that reduces glare and provides capacitive coupled voltage pen action. The transparent multilayer antireflective coating circular polarizer structure permits visual observation of the information on the face of the cathode-ray tube with minimum glare and reflection and also maintains a potential field across one of the layers of the antireflective coating. The potential field is utilized for correlating a pen position on the outer surface of the multilayer coating.

3,576,357

ENVELOPE EXPANSION OPTICS FOR VISUAL
SYSTEMS WITH PERSPECTIVE ALTERATION MEANS
Kenneth Levy, Binghamton, N.Y., assignor to Singer-General
Precision, Inc., Binghamton, N.Y.
Filed Apr. 24, 1969, Ser. No. 819,031
Int. Cl. G02b 13/08

U.S. Cl. 350-181

9 Claims



The disclosed embodiment of the present invention is an optical system which, when employed with a visual system which alters the apparent perspective of an image, increases the limits of the visual system along a horizontal axis perpendicular to the recorded flight path. The optical system is formed of a pair of anamorphic lens groups, each positioned at respective opposite ends of the visual system to operate on the light rays entering and leaving the visual system. The lens group at the object end of the visual system increases the ratio of height to width of the image being transformed by a predetermined factor. The lens group at the image end of the visual system decreases the ratio of height to width of the image being transformed by the same factor. As a result, all lines which are other than entirely vertical or horizontal are tilted through a greater angle.

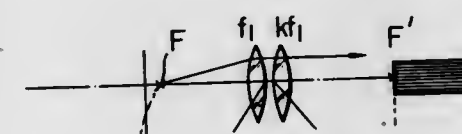
3,576,358

OPTICAL SYSTEM WITH CONTINUOUSLY VARIABLE
MAGNIFICATION

Yoshisada Hayamizu; Satoru Sakamoto, and Nobuo
Yamashita, Tokyo, Japan, assignors to Olympus Optical
Co., Ltd., Tokyo, Japan
Filed Apr. 15, 1968, Ser. No. 721,248
Claims priority, application Japan, Apr. 20, 1967, 42/24,833
Int. Cl. G02b 5/16, 13/22, 15/14

U.S. Cl. 350-184

5 Claims



An optical system for focusing the image of an object at continuously variable magnification on a surface substantially perpendicular to the optical axis and having two lens elements of positive refractive power axially movable relative to each other to vary the focal length of the system. A stop is fixed in the system relative to the image surface approximately in the midpoint of the range of movement of the front focal point of the two positive elements during relative movement of the same while the image is focused in the surface. The focal lengths of the two positive elements satisfy the relationship $0.6 f_1 < f_2 < 3 f_1$ unless a negative lens element is located in front of the two positive lens elements in a fixed axial relationship of the rear focal point of the negative element to the aforementioned front focal point. In this arrangement, the focal lengths of the two positive elements need satisfy only the relationship $0.6 f_1 < f_2 < 8 f_1$.

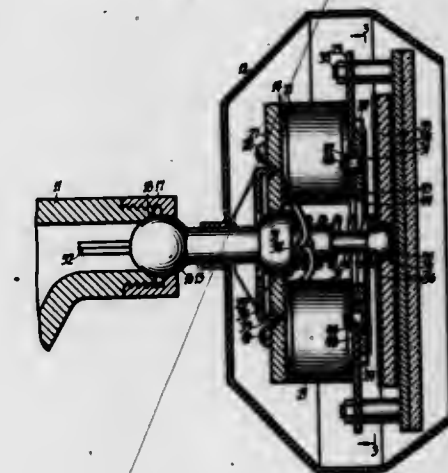
3,576,359

PLURAL MOTOR-DRIVEN MIRROR

Harry Jose Cosh, East Bentleigh, Victoria, Australia
Filed June 24, 1969, Ser. No. 836,022
Claims priority, application Australia, June 25, 1968, 39695
Int. Cl. G02b 5/08

U.S. Cl. 350-289

10 Claims



Apparatus is provided for producing relative movement between a supporting member and a workpiece, for example, automobile equipment such as a rear view mirror, responsive to control from a remote position. A movement transmitting plate is mounted for movement on the supporting member and is displaced by a plurality of electric motor, responsive to remote control, relative to the supporting member. The workpiece is thereafter moved in a plane normal to the plane of the supporting member into engagement with the displaced transmitting plate. Means are provided in response to such engagement for causing movement of the transmitting plate in a direction opposite its original displacement thereby imparting a corresponding relative motion to said workpiece.

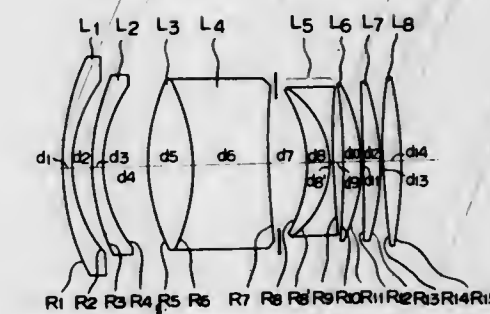
3,576,360

WIDE ANGLE PHOTOGRAPHIC OBJECTIVE OF LARGE
APERTURE RATIO

Yoshiyuki Shimizu, Yokohama-shi, Japan, assignor to Nippon
Kogaku K. K., Tokyo, Japan
Filed Nov. 19, 1968, Ser. No. 776,960
Claims priority, application Japan, Nov. 25, 1967, 75342
Int. Cl. G02b 9/64, 13/04

U.S. Cl. 350-176

5 Claims



The present invention provides a compact wide angle camera lens system of large aperture ratio having long back focus comprising eight lens groups, by which the aperture ratio of F/1.4, angle of field 62° and longer back focus than the focal length of the whole system is obtained.

3,576,361

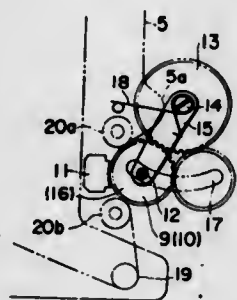
DEVICE FOR AUTOMATICALLY FORMING FILM-LOOP IN A MINIATURE MOVIE PROJECTOR

Tokusaburo Kakiuchi, and Ikuji Katoh, Tokyo, Japan, assignors to Kabushiki Kaisha Ricoh, Tokyo, Japan
Filed May 7, 1968, Ser. No. 727,224

Claims priority, application Japan, May 6, 1967, 42/28640
Int. Cl. G03b 1/56

U.S. Cl. 352-157

5 Claims



A projector has means for feeding a sound movie film strip through a gate on the optical axis of a projecting lens and then past a takeup sprocket wheel. The sprocket wheel is mounted on the movable end of a pivoted arm and is swung into contact with the film during a loading step by a spring which rotates the movable end of the pivoted arm toward the film. The sprocket wheel rotates on its axis during the swinging step as a coaxial gear to which it is rigidly fastened rolls over the surface of a nonrotating drive gear which is positioned coaxially with the pivot of the pivoted arm. The rotation of the sprocket wheel during the loading step "backs up" the film toward the gate and forms a loop therein to accommodate an intermittent film mechanism at the gate.

3,576,362

PHOTOGRAPHIC APPARATUS

Helmut Mayr, Richard Pelte, and Theodor Huber, Munich, Germany, assignors to Agfa-Gevaert Aktiengesellschaft, Leverkusen, Germany

Filed Jan. 23, 1969, Ser. No. 793,395

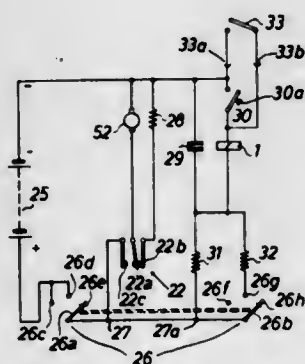
Claims priority, application Germany, Jan. 31, 1968,

P 16 22 167.3

Int. Cl. G03b 21/38

U.S. Cl. 352-169

21 Claims



The circuit of the electric motor in a motion picture camera is completed by an electromagnet whose armature arrests the shutter in a predetermined angular position when the motor is arrested. The electromagnet is energized by a capacitor, either directly or by way of a transistor. The circuit of the capacitor is completed by a main switch or by a trigger switch which latter is installed in the camera body and is actuated by a Bowden wire.

3,576,363

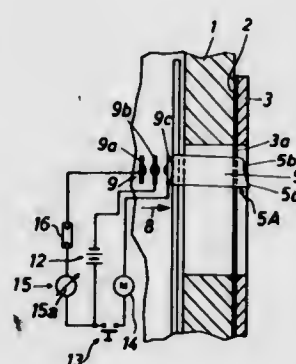
CINEMATOGRAPHIC APPARATUS

Anton Theer, Munich, Germany, assignor to Agfa-Gevaert Aktiengesellschaft, Leverkusen, Germany
Filed Apr. 30, 1968, Ser. No. 725,340

Claims priority, application Germany, May 27, 1967, A55706
Int. Cl. G03b 1/22

U.S. Cl. 352-191

12 Claims



A motion picture camera or projector wherein the pull-down of the film transporting mechanism moves from a first to a second position in response to removal of film from the path in which the film is advanced from the supply reel to the takeup reel. The pulldown thereby permits opening of a switch which is connected in circuit with the motor for the pulldown and with the light meter of the exposure control in a camera. The switch closes in automatic response to insertion of a fresh supply of film.

3,576,364

COLOR ADVERTISING DISPLAY EMPLOYING LIQUID CRYSTAL

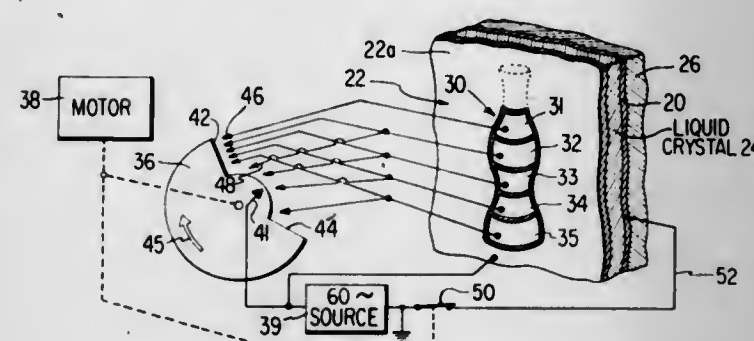
Louis Anthony Zanoni, Trenton, N.J., assignor to RCA Corporation

Filed May 20, 1969, Ser. No. 826,159

Int. Cl. G02f 1/36

U.S. Cl. 353-28

4 Claims



A color picture is projected onto a liquid crystal display panel and becomes visible, in color, at those areas of the panel at which the liquid crystal is concurrently excited by the application of an electric field. A "moving" picture is simulated by selectively removing (or applying) the electric field from (or to) different areas of the panel during successive time intervals.

3,576,365

PHOTO-COMPOSING MACHINES

George W. Callum, Canning Town, England, assignor to Moore Business Forms, Inc., Niagara Falls, N.Y.

Filed Oct. 14, 1968, Ser. No. 767,195

Claims priority, application Great Britain, Oct. 19, 1967,

47,737/67

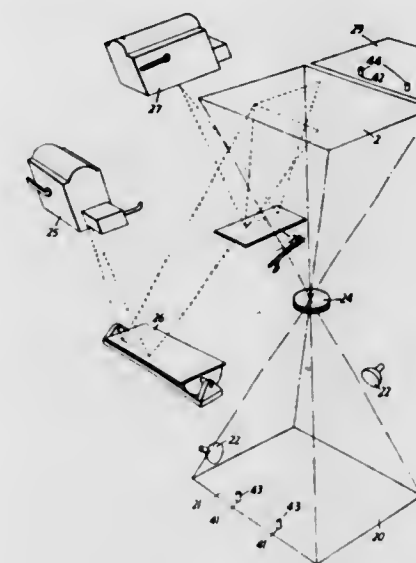
Int. Cl. G03b 27/70

U.S. Cl. 355-43

5 Claims

A representation of a copy form is displayed and an image pattern is projected onto the representation so that the light

image pattern is identical with and overlies part of the copy of the document format in a first printing machine and over-form. A sensitized material is irradiated with actinic light in a printing the appropriate forms background over the variable



pattern corresponding to the projected pattern. The positions of the projected and exposed patterns are adjusted to expose the entire copy form onto the sensitized material.

3,576,366

SUPPORT SYSTEM FOR TRAYS IN SLIDE PROJECTORS

John L. Sheaffer, Bellevue Hill N.S.W., Australia, assignor to Fotek Corporation Pty. Ltd., Brookvale, N.S.W., Australia

Filed Sept. 25, 1968, Ser. No. 762,534

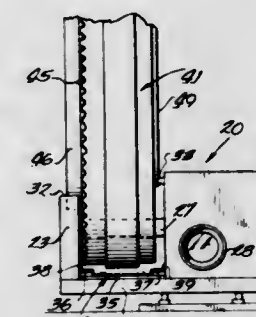
Claims priority, application Australia, Oct. 26, 1968,

34181/68

Int. Cl. G03b 23/06

U.S. Cl. 353-117

5 Claims



A slide projector having a housing with a longitudinally extending, U-shaped slide tray receiving channel and a support system designed to accept with equal facility either an elongated box slide tray or a circular slide tray. One wall of the slide tray receiving channel has a recess formed therein and bearing pads are disposed in the recess for contacting and rotatably supporting the hub portion of a circular slide tray. Stabilization pins are provided in the second wall and are adapted to contact the hub on the opposite side for maintaining the circular slide tray in position in the channel.

3,576,367

MACHINE FOR PREPARING DOCUMENTS

Arthur J. Sable, Riverside, Conn., assignor to International Business Machines Corporation, Armonk, N.Y.

Continuation of application Ser. No. 520,955, Jan. 17, 1966,

now abandoned. This application Sept. 6, 1968, Ser. No.

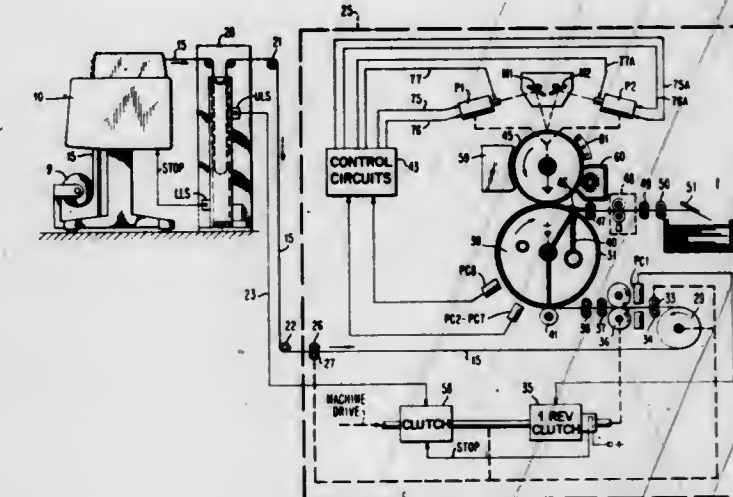
758,158

Int. Cl. G03g 15/00

U.S. Cl. 355-6

8 Claims

Apparatus for printing variable data constituting a succession of documents together with control symbols manifestive



data in a second machine under control of the preprinted control symbols.

ERRATUM

For Class 355-43 see:
Patent No. 3,576,365

3,576,368

IMAGING SYSTEM

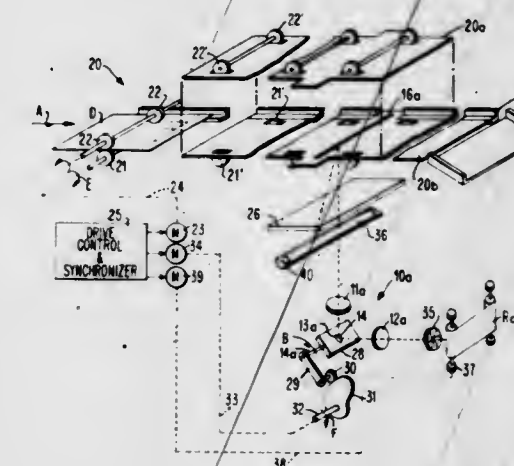
William E. Goetz, Endwell, and Fred L. Hajny, Vestal, N.Y., assignors to International Business Machines Corporation, Armonk, N.Y.

Filed Jan. 16, 1969, Ser. No. 791,670

Int. Cl. G03b 27/50, 27/70

U.S. Cl. 355-51

23 Claims



An imaging system having moving optical apparatus for imaging an object on an image receptor, one of which, i.e. the object or the receptor, is also moving and the other is stationary during the imaging cycle. The moving optical apparatus has in a cascaded optically aligned relationship collimating and focusing stationary lenses and a rotatable reflector disposed as an aperture stop between the lenses. During the imaging cycle, the collimating and focusing lenses are in a predetermined optical coupling relationship with the object and image receptor, respectively, as the reflector rotates about a fixed axis position. During the imaging cycle the reflector rotates in a coordinated manner with the moving object or moving receptor, as the case may be, which in coaction with the lenses causes the object to be imaged in the image plane of the receptor in focus and in the same position irrespective of the movement of the object or receptor, as the case may be.

3,576,369 METHOD OF MAKING PRINTS FROM PHOTOGRAPHIC NEGATIVES

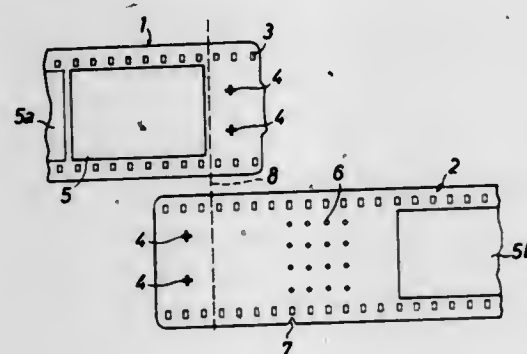
Richard Wick, Roland Kohler, and Othmar Schneider, Munich, Germany, assignors to Agfa-Gevaert Aktiengesellschaft, Leverkusen, Germany

Division of Ser. No. 511,887, Dec. 3, 1965, Pat. No. 3,454,336
Filed Dec. 19, 1968, Ser. No. 785,134

Int. Cl. G03b 27/32

U.S. Cl. 355-77

15 Claims



A method of making paper prints from photographic negatives which comprises providing customer films with coded information including a frame positioning mark adjacent to each satisfactory negative, splicing the films to form a strip, and conveying the strip through a printing station where the films are scanned to detect the marks to insure proper positioning of negatives during exposure of images on print paper. Successive marks are counted and appropriate serial numbers are applied to the rear sides of prints. A correction strip is conveyed with the prints to receive coded information including the serial numbers of unsatisfactory prints and information pertaining to the correction of exposure of negatives which yielded unsatisfactory prints. The two strips are then returned to the printing station for corrected exposure of negatives which yielded unsatisfactory prints.

3,576,370 EXPOSURE TIME CONTROL SYSTEM FOR PHOTOGRAPHIC APPARATUS

Gerhard Kuhn, Leverkusen; Wolfgang Zahn, and Walter Knapp, Munich, Germany, assignors to AGFA-Gevaert Aktiengesellschaft, Leverkusen, Germany

Filed Oct. 23, 1968, Ser. No. 769,868

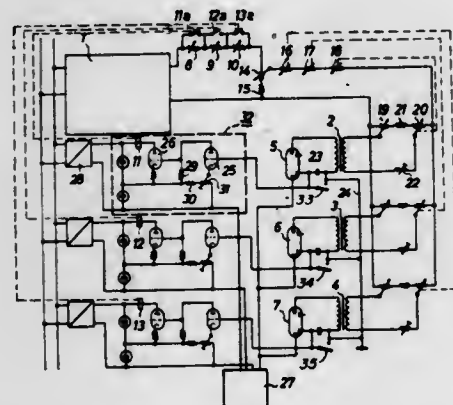
Claims priority, application Germany, Oct. 27, 1967,

P 15 97 078.2

Int. Cl. G03b 27/78

U.S. Cl. 355-88

12 Claims



Light is transmitted through the original onto photosensitive material in each of three primary colors. Three secondary electromultipliers furnish electrical currents which vary as a function of the light received by the photosensitive material in each color. Each current is integrated by a capacitor, the voltage on the capacitor compared to a reference voltage, and a relay energized when the capacitor voltage and the reference voltage have a predetermined relationship. Each relay has a first set of contacts for terminating the illumina-

tion in the corresponding color and a second set of contacts for shorting out part of a resistance connected in series between the supply voltage terminal and a transformer supplying voltage to the secondary electron multiplier corresponding to the other colors. This increases the sensitivity of the other electron multipliers, increasing the charging rate of the capacitor, and thus decreasing the exposure time in the other colors.

3,576,371 ONE WAY OPTICAL RANGING SYSTEM

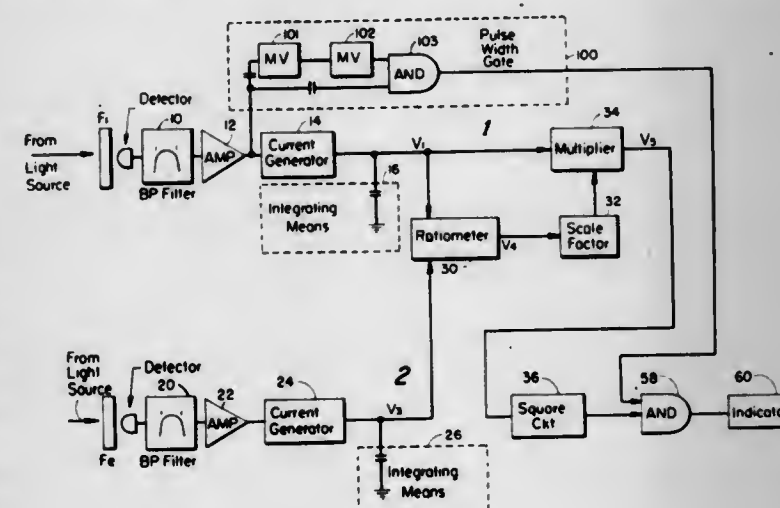
Edward M. Ulicki, East Patterson, N.J., assignor to Holobeam, Inc., Paramus, N.J.

Filed Feb. 5, 1969, Ser. No. 796,696

Int. Cl. G01c 3/00

U.S. Cl. 356-4

8 Claims



This invention relates to a one way optical range finding system. Optical radiation at two different wavelengths, one of which is substantially unaffected by the atmosphere, is transmitted to a distant object through the atmosphere. The ratios of the received radiation signals at the two wavelengths is used to compensate for the atmospheric effects on the other transmitted wavelength.

3,576,372 WHEEL ALIGNER PROJECTOR WITH DAMPING MECHANISM

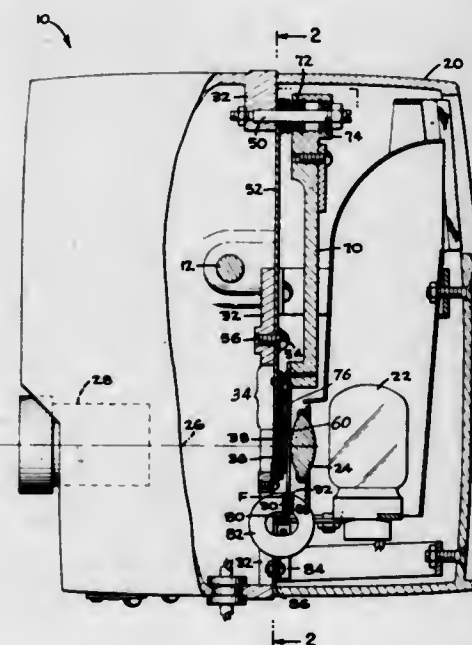
James W. Baker, East Lansing, Mich., assignor to FMC Corporation, San Jose, Calif.

Filed Feb. 19, 1969, Ser. No. 800,404

Int. Cl. G01b 11/26

U.S. Cl. 356-155

7 Claims



A projector, which mounts on the front wheel of a vehicle, projects the image of a reference mark during alignment of

the wheels. The reference mark is mounted on a pendulum which swings in front of a lamp to give, in conjunction with the projected image of reference indicia which is fixed in the projector, an indication of the tilt of the projector and the wheel on which it is mounted. The pendulum has an aluminum portion which swings through the magnetic field established by opposite, spaced apart, pole faces of a permanent magnet. The motion of the nonmagnetic, current-conducting pendulum portion through the magnetic field induces currents in the pendulum portion which damps the motion of the pendulum.

3,576,373 AN AIRCRAFT GUNSIGHT INCLUDING A PIVOTALLY MOUNTED REFLECTOR PLATE

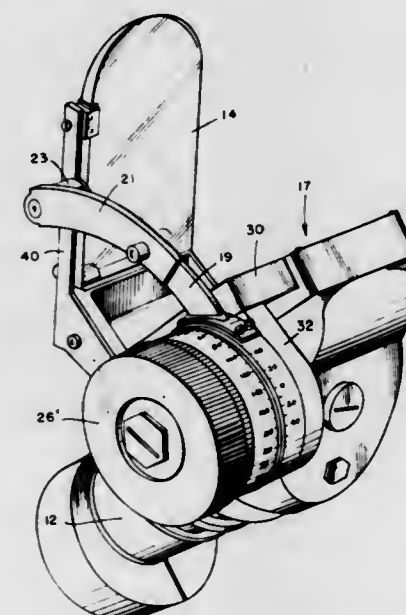
Frederick Bien, and Ronald V. Gonder, China Lake, Calif., assignors to the United States of America as represented by the Secretary of the Navy

Filed Oct. 22, 1969, Ser. No. 868,483

Int. Cl. G02b 23/10

U.S. Cl. 356-251

1 Claim



An aircraft gunsight having an angularly mounted reflector plate assembly pivoting around an axis through the outer extremity of two depending legs and having means for frictionally applying torque to the assembly near said axis is modified by substituting means applying torque at a point along the reflector plate remote from the pivotal axis of the depending legs.

3,576,374 PENCIL OPERATING MECHANISM

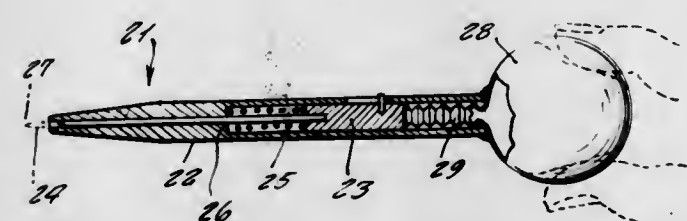
Leila J. Lile, 5076 Elmwood Drive, San Jose, Calif.

Filed Mar. 10, 1969, Ser. No. 805,734

Int. Cl. B43k 21/02, 29/00

U.S. Cl. 401-52

4 Claims



A pencil having a hollow body containing a movable piston secured at one end to the pencil lead and at the opposite end to an external spherical helium-filled balloon or elastic container. The piston is spring biased to retract the lead within the body. The container causes the pencil to float in air and

when squeezed, displaces the piston for extending the lead out of the pencil body.

3,576,375 FLUID PUMPING SYSTEM

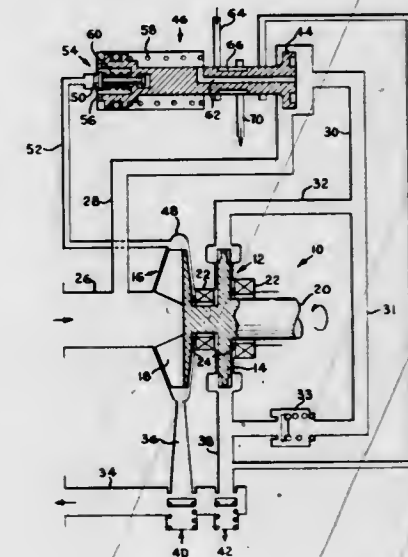
Clive G. B. Jackson, Clayville, N.Y., assignor to The Bendix Corporation

Filed July 10, 1969, Ser. No. 840,752

Int. Cl. F01 25/00; F01d 13/00

U.S. Cl. 415-18

4 Claims



A pumping system for supplying fuel to the burners of aircraft jet engines. The system comprises a radially-vaned centrifugal pump and a peripheral vortex pump arranged in parallel to cooperatively deliver fuel under the correct pressure for all ranges of operation. The system includes sequential valving or clutching means so that at very low speeds (at ignition), the peripheral vortex pump supplies the fuel and at higher speeds, the radially vaned pump supplies the fuel.

3,576,376 PROPELLING DEVICE

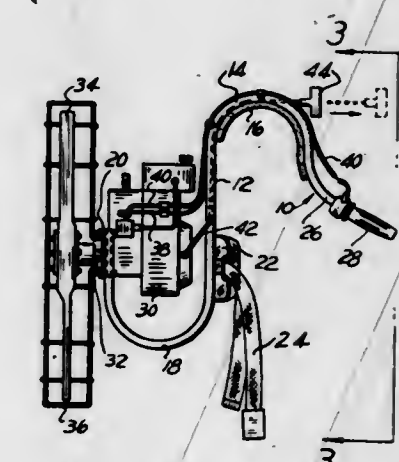
Donald E. Steeg, 4881 Beech Daly, Dearborn Heights, Mich.

Filed Apr. 1, 1969, Ser. No. 812,012

Int. Cl. B63h 7/02

U.S. Cl. 416-63

1 Claim



A device for propelling skiers, skaters and the like, consisting of an engine and propeller assembly mounted on a frame which is attachable to the person. A forward thrust of sufficient magnitude is generated by the propeller and transmitted through the frame to drive the skier or skater.

3,576,377

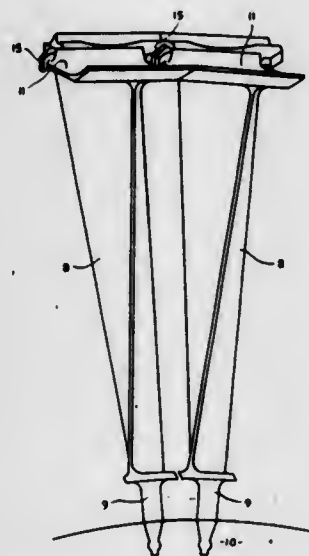
BLADES FOR FLUID FLOW MACHINES

Michael Hargreaves Beanland, Alveston, Gloucestershire, and Michael Anthony Wilson, Wotton-under-Edge, Gloucester, England, assignors to Rolls-Royce Limited, Derby, England
Filed Dec. 13, 1968, Ser. No. 783,632
Claims priority, application Great Britain, Dec. 22, 1967, 58478/67

Int. Cl. F01d 5/16

U.S. Cl. 416-191

6 Claims



In a bladed rotor for a gas turbine engine each blade in a turbine blade ring has a shroud portion which is adapted to abut the next adjacent shroud portions of blades in the blade ring. The abutting surfaces are provided by the wear-resistant ends of a bridgepiece which fits over the shroud and is brazed into position.

3,576,378

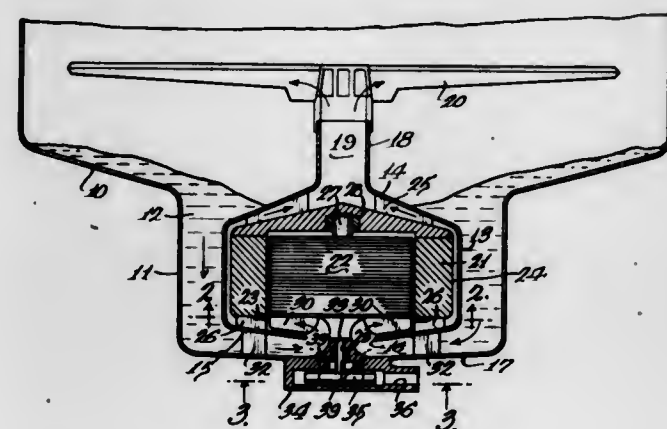
LIQUID CIRCULATION APPARATUS WITH SUBMERSIBLE PUMP AND MOTOR

James R. Hilmanowski, St. Paul, Minn., assignor to Whirlpool Corporation
Filed June 13, 1969, Ser. No. 832,927

Int. Cl. F04b 23/04; B08b 3/00

U.S. Cl. 417-366

5 Claims



A liquid circulation apparatus such as a pump for circulating washing and rinsing liquid in a dishwasher comprising a sump for retaining a body of the liquid, a motor housing located in the sump for immersion in the liquid therein, a motor comprising a rotor and a surrounding stator in the housing, liquid flow passage means through the housing having an entrance connecting with the sump and an exit for discharge of the liquid and liquid impeller means on the rotor within the submersible housing for drawing liquid in through the entrance, forcing it through the passage means and under pressure from the exit.

3,576,379

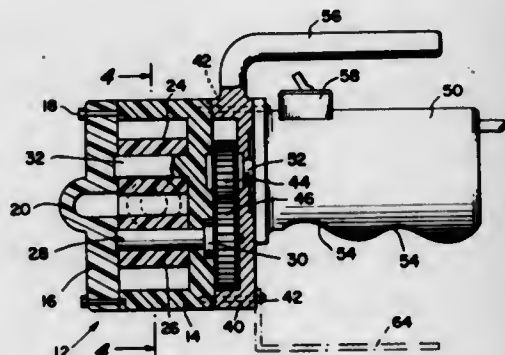
PORTABLE LOW-PRESSURE DIRECT CURRENT PUMP

James A. Parise, 1145 Sharlene Drive, Youngstown, Ohio
Filed Jan. 27, 1969, Ser. No. 794,279

Int. Cl. F04c 15/00

U.S. Cl. 417-410

1 Claim



A pump is provided to meet low-capacity demand of water, and of easy portability, for operating on direct current voltage generated by automobiles and trucks. The pump is a gear pump, is easily fabricated and is of small size and light weight.

3,576,380

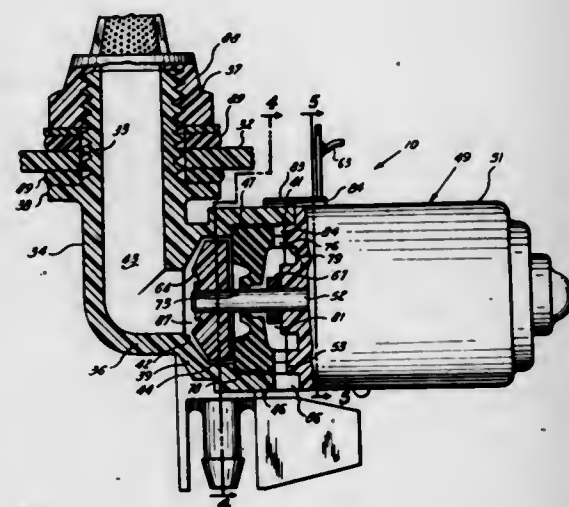
MOTOR AND PUMP ASSEMBLY

John E. Sargeant, Detroit, Mich., assignor to McCord Corporation, Detroit, Mich.
Filed Aug. 11, 1969, Ser. No. 849,080

Int. Cl. F04d 13/02

U.S. Cl. 417-423

5 Claims



A motor and pump assembly includes a motor housing having a shaft section projected from one end, and a pump housing having an inlet and an outlet open, respectively, to the bottom wall and sidewall of a circular cavity formed in one end of the pump housing. The shaft section carries an impeller at its outer end and a rotatable resilient disc-shape sealing member spaced inwardly from the impeller. With the impeller and sealing member received in the cavity and the one end of the pump housing in abutting engagement with the one end of the motor housing the sealing member is positioned adjacent the motor housing with its outer peripheral surface in sealing engagement with the cavity sidewall. The sealing member thus provides one wall of a chamber means for the impeller and a fluid seal between such chamber means and the motor housing.

3,576,381

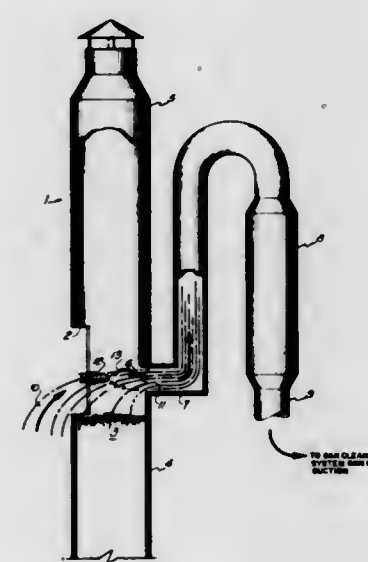
APPARATUS AND METHOD FOR CUPOLA VENTILATION

Daniel E. Pike, 19 Jay St., Harrington Park, and James A. Gross, 62 Yorktown Road, East Brunswick, N.J.
Filed Dec. 3, 1969, Ser. No. 881,666

Int. Cl. F23b 5/02

U.S. Cl. 431-202

8 Claims



Combustion air entering through the lower portion of the charging opening of a cupola sweeps cupola gas out of the cupola through a gas takeoff duct directly opposite the charging opening and thence to a secondary combustion chamber ahead of a gas cleaning system. Primary burners in the cupola adjacent the charging opening ignite the mixture of cupola gas and combustion air before entry into the gas takeoff duct. The quantity of combustion air is sufficient only to exhaust the cupola gas and to burn the combustible matter contained therein with little or no excess air. The amount of gases to be passed through gas cleaning system is minimized.

3,576,382

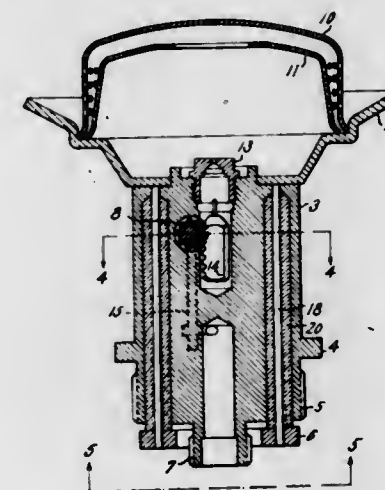
FUEL BURNER

Harald Finnstrand, 35 Elm Tree Lane, Pelham, N.Y.
Filed Feb. 25, 1969, Ser. No. 802,121

Int. Cl. F23d 11/44

U.S. Cl. 431-208

7 Claims



A fuel burner for a cooking unit comprises a body adapted for the flow of liquid fuel into same and adapted for vaporizing the fuel before it reaches a nozzle for vaporized fuel. The burner also includes at least one air-intake aperture therein.

for mixing air and fuel vapor to form a combustible mixture. The burner also includes electrical heating means in proximity to the burner body and the mixing chamber for preheating primarily the burner body and also the mixing chamber to sustain vaporization of the fuel in the burner body.

3,576,383

PIEZOELECTRIC IGNITION MECHANISM

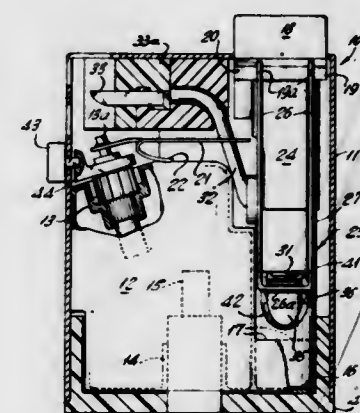
Douglas S. Fuller, Ockham, and Hugh F. Lang, London, England, assignors to Ranssen Corporation, Woodbridge, N.J.
Filed July 30, 1969, Ser. No. 846,043

Claims priority, application Great Britain, Aug. 2, 1968, 37127/68

Int. Cl. F23q 3/01

U.S. Cl. 431-255

13 Claims



A piezoelectric ignition mechanism which produces a series of voltage surges so as to create a series of sparks across spaced terminals rather than a single spark upon impacting a piezoelectric crystal. This result is attained by using a buffer which causes the crystal to reverberate.

3,576,384

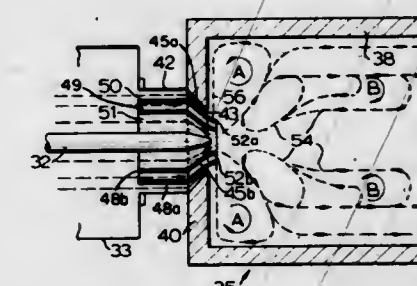
MULTINOZZLE SYSTEM FOR VORTEX BURNERS

Charles F. Peczel, Weston, Ontario, and Edward T. Tyrce, Toronto, Ontario, Canada, assignors to The British American Oil Company Limited, Toronto, Ontario, Canada
Filed Nov. 29, 1968, Ser. No. 779,707

Int. Cl. F23d 15/02

U.S. Cl. 431-353

6 Claims



A nozzle to be positioned around a fuel atomizer between a rotary air chamber and a coaxial combustion chamber. The nozzle consists of a 45° conical frustum surrounding the atomizer but spaced therefrom, and at least one frustoconical baffle with the same cone angle, located between the outer frustum and the atomizer. Thus are defined two concentric, converging annular passageways through which rotating air passes from the air chamber into the combustion chamber around the atomizer.

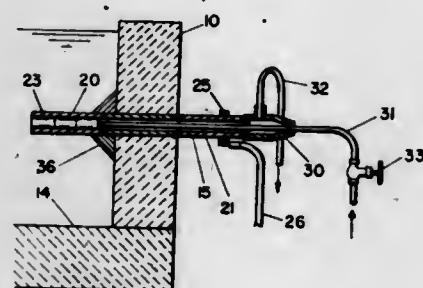
ELECTRICAL

3,576,385

ELECTRODE FOR A GLASS FURNACE

Philip W. Robinson, 7831 Seventh St., Downey, Calif.
Filed July 14, 1969, Ser. No. 841,228
Int. Cl. C03b 5/02

U.S. Cl. 13-6



A water-cooled electrode is designed especially for a glass furnace. The electrode is a tubular sleeve in which is slidably held a sectionalized core. The electrode can be added to as required since the electrode is slowly consumed by dissolving in the molten glass. The water-cooled feature adds to the life of the electrode and also greatly reduces the rapid deterioration of the furnace wall in the vicinity of the electrode by reducing wall temperatures in that area.

3,576,386

FLUID-TIGHT BUSHING FOR CRYOGENIC DEVICES

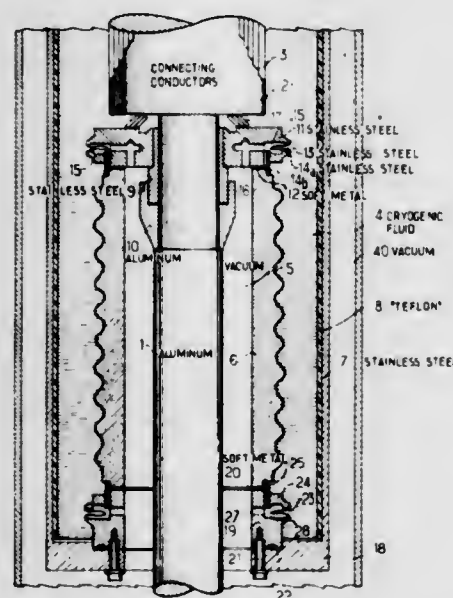
Francois Moisson-Franckhauser, Bretigny-sur-Orge; Marcel Aupoix, Paris; and Gerard Grison, Thiais, France; assignors to Compagnie Generale d'Electricite, Paris, and l'Air Liquide Societe Anonyme pour l'Etude et l'Exploitation des Procédes Georges Claude, Paris, France
Filed Jan. 17, 1969, Ser. No. 792,012

Claims priority, application France, Jan. 26, 1968, 137,689

Int. Cl. H01b 17/26

U.S. Cl. 174/18

11 Claims



An isothermal fluid-tight bushing for an electric conductor leading between two spaces one of which is isothermal, consists of a substantially tubular member of ceramic material which, in conjunction with a wall to which the member is connected, defines the separation between the two spaces and two junction means respectively connecting the ceramic member with the conductor and the wall. Each junction means consists of a stainless steel element connected to the conductor or the wall, as the case may be, a bellows connected to the element and a junction member connected between the bellows and the ceramic member.

HEAT SHRINKABLE ELECTROMAGNETIC SHIELD FOR ELECTRICAL CONDUCTORS

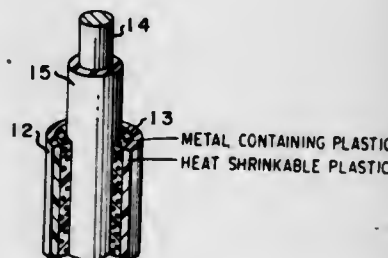
Marshall J. Derby, Topsfield, Mass., assignor to Chomerics, Inc., Woburn, Mass.

Continuation-in-part of application Ser. No. 731,418, May 23, 1968, now abandoned. This application Mar. 19, 1970, Ser. No. 21,190

Int. Cl. H01b 11/06

U.S. Cl. 174-36

30 Claims



A heat-shrinkable article comprising a hollow tube of a heat-shrinkable material and a thin layer bonded to and conforming to a surface of the tube, said layer comprising a flexible and resilient polymeric material having electrically conductive particles dispersed therethrough. The heat-shrinkable article is useful as an electromagnetic shield when shrunk over an insulated electrical conductor.

3,576,388

ELECTRICAL CABLE

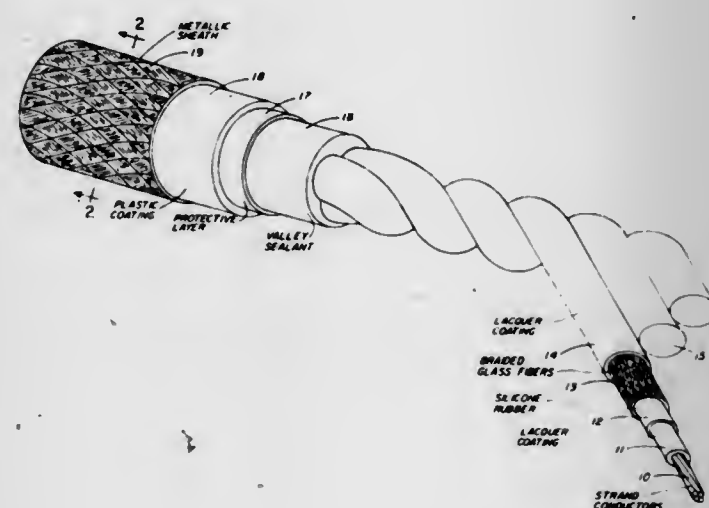
Carl Newton Bruns, Adrian, Mich., assignor to Stauffer-Wacker Silicone Corporation

Filed Dec. 5, 1968, Ser. No. 781,309

Int. Cl. H01b 7/02

U.S. Cl. 174-116

7 Claims



The invention relates to a multiple-conductor electrical cable containing a heat-curable cellular or noncellular silicone rubber as valley sealant between the individual conductors. The cellular heat-curable silicone rubber may be foamed in situ prior to curing to form an elastomeric material which will reduce the density of the electrical cable. Should the cable be exposed to an open flame, the cellular or noncellular silicone rubber will revert to a nonconductive inert organic silica layer and thereby protect the electrical integrity of the cable.

APRIL 27, 1971

ELECTRICAL

735

3,576,389

AUTOMATIC COLOR CONTROL CIRCUIT

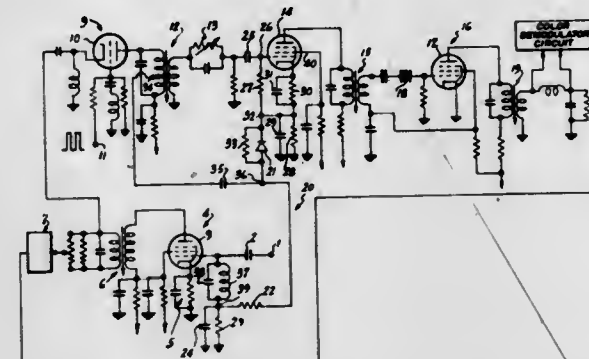
Kenichi Sasaki, Tokyo, and Kazunori Nishi, Kanagawa-ken, Japan, assignors to Sony Corporation, Tokyo, Japan

Filed Feb. 6, 1968, Ser. No. 703,290

Int. Cl. H04n 9/48

U.S. Cl. 178-5.4AC

3 Claims



In an automatic color control circuit for color television receivers, color burst signals separated from the output of a carrier chrominance signal amplifier are rectified to produce a control signal for varying the gain of the amplifier inversely with respect to the control signal, and the control signal is suppressed, as by the application to the rectifier circuit of a reverse bias which varies inversely with the burst signals, so as to reduce the amplifier gain from its maximum level only when the input chrominance signals, and hence the burst signals separated therefrom, are at least at predetermined levels.

3,576,390

APPARATUS FOR GENERATING TEST SIGNALS USEFUL IN MEASURING TELEVISION TRANSMISSION PERFORMANCE WITHOUT AFFECTING RECEIVER SYNCHRONIZATION

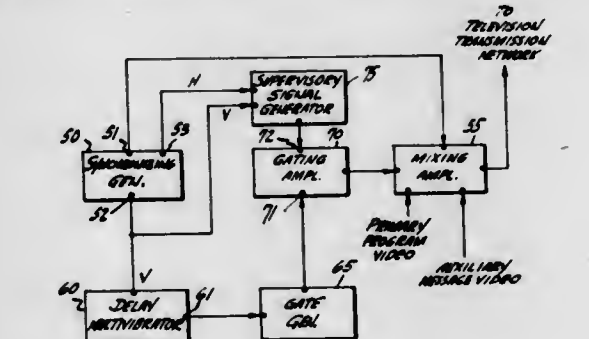
Donald S. Bond, Princeton, N.J.; Alfred C. Schroeder, Southampton, Pa., and Dalton H. Pritchard, Princeton, N.J., assignors to RCA Corporation

Filed May 29, 1968, Ser. No. 732,949

Int. Cl. H04n 5/00

U.S. Cl. 178-5.6

6 Claims



Apparatus for generating supervisory test signals in the interval between the beginning of vertical blanking and the beginning of vertical sync in a television synchronizing waveform, so as to free for other communication purposes those portions of the waveform such test signals conventionally occupy.

3,576,391

TELEVISION SYSTEM FOR TRANSMITTING AUXILIARY INFORMATION DURING THE VERTICAL BLANKING INTERVAL

William D. Houghton, Princeton, N.J., assignor to RCA Corporation

Filed June 26, 1968, Ser. No. 740,383

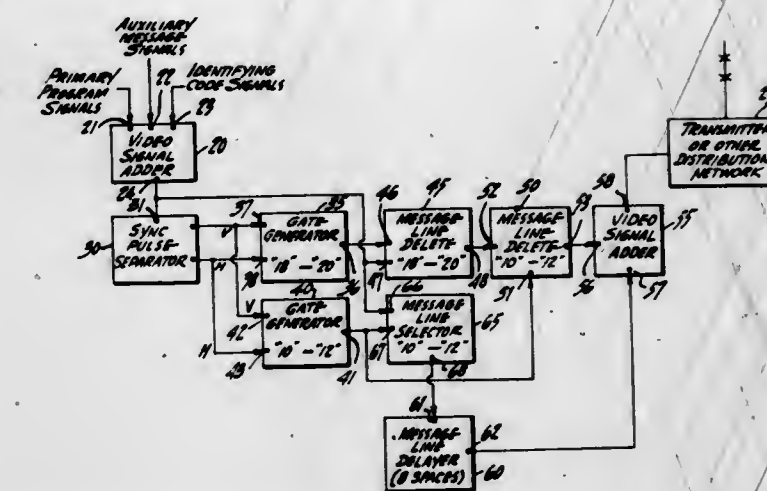
Int. Cl. H04n 7/08, 5/22

U.S. Cl. 178-5.6

9 Claims

Gating and delay apparatus for rearranging the position of auxiliary message information to be transmitted together with

primary program information over network distribution facilities during predetermined portions of the vertical blank-



ing interval of a composite television signal, so as to minimize undesirable brightness modulation of the vertical retrace lines at the receiver's primary program image reproducer.

3,576,392

SEMICONDUCTOR VIDICON TARGET HAVING ELECTRONICALLY ALTERABLE LIGHT RESPONSE CHARACTERISTICS

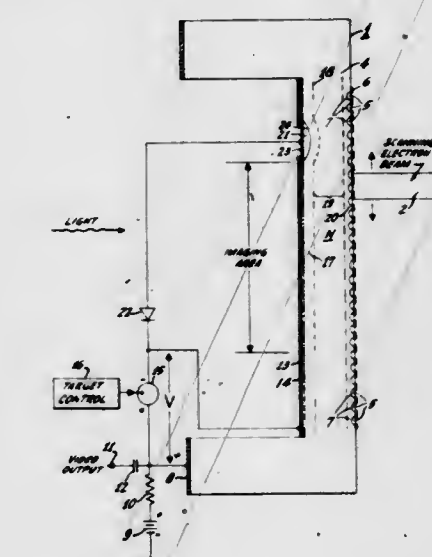
Steven R. Hofstein, Princeton, N.J., assignor to RCA Corporation

Filed June 26, 1968, Ser. No. 740,350

Int. Cl. H04n 3/14

U.S. Cl. 178-7.1

20 Claims



A silicon vidicon target comprises an N-type silicon wafer having one surface exposed to incident light, and a large number of discrete P-type regions diffused into the opposite wafer surface, which is scanned by an electron beam. A transparent electrode overlies a transparent insulator disposed on the illuminated wafer surface. The optical sensitivity and spectral response of the target are varied by applying a bias voltage between the transparent electrode and the N-type wafer.

3,576,393

AUTOMATIC EXPOSURE CONTROL FOR A SLOW SCAN VIDICON

Thomas Thompson, Silver Spring, Md., assignor to the United States of America as represented by the Secretary of the Navy

Filed Dec. 15, 1967, Ser. No. 690,808

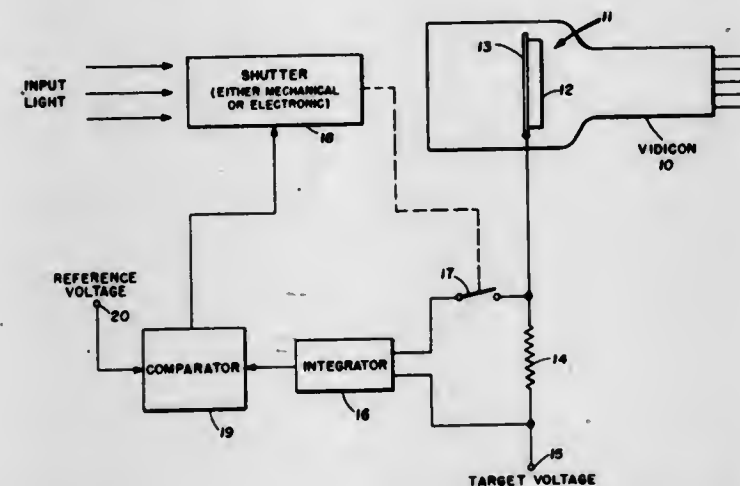
Int. Cl. H04n 5/26

U.S. Cl. 178-7.2

5 Claims

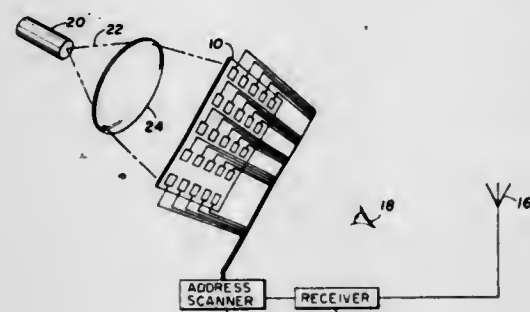
The present invention provides an automatic exposure control circuit for a vidicon camera tube wherein the target

element of the vidicon is utilized as the "heart" of its own exposure control. More specifically, the target element output signal is integrated to produce a voltage whose magnitude is proportional to average image intensity; which proportionate or analog voltage is then compared to a reference voltage



preselected in accordance with desired video output level. The comparator output is then used as instantaneous feedback to operate the vidicon shutter when the proportionate or analog voltage signal comes into agreement with the reference voltage.

3,576,394
APPARATUS FOR DISPLAY DURATION MODULATION
Ray H. Lee, Richardson, Tex., assignor to Texas Instruments, Incorporated, Dallas, Tex.
Filed July 3, 1968, Ser. No. 742,365
Int. Cl. H04n 3/02
U.S. Cl. 178-7.3 8 Claims

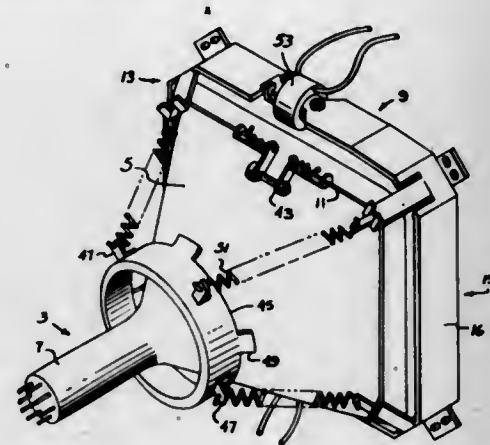


The display state of a light element may be modulated by a video signal in a system that includes a storage device for transforming the video signal, which is available only during a writing time of short duration, to a display signal. A writing circuit for the light element includes the storage device and provides a writing equivalent circuit having a time constant short in comparison to the length of the writing time. A holding circuit also includes the storage device in an equivalent circuit that has a time constant long in comparison to one frame time. One frame time equals the time spacing between subsequent addressing of one light element in a display consisting of a plurality of such light elements. Inasmuch as the brightness of a light element is measured by the light integral of the element over one frame time, a half-tone display can be effected if the display duration of each element in an array of such elements is video modulated by means of the writing circuit and the holding circuit.

3,576,395
INTEGRAL SUPPORT AND MAGNETIC SHIELDING MEANS FOR CATHODE-RAY TUBES
William Lee Arrington, and Robert Dwight Gantt, Batavia, N.Y., assignors to Sylvania Electric Products, Inc.
Filed May 21, 1969, Ser. No. 826,585
Int. Cl. H01j 29/06
U.S. Cl. 178-7.82 5 Claims

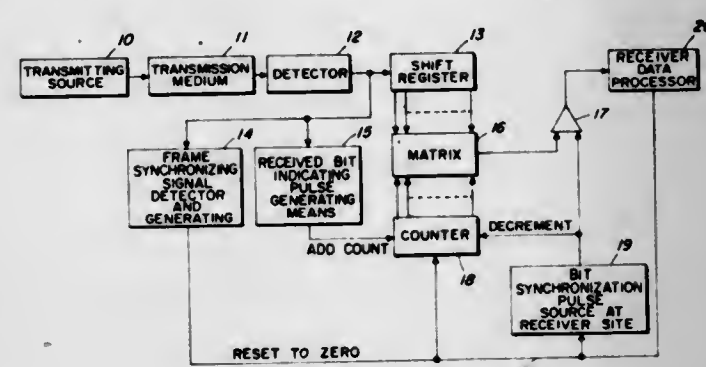
An integral supporting structure and magnetic shielding means for cathode-ray tubes includes a metal member and a

wire member means in surrounding relationship to a cathode-ray tube. The metal member includes peripheral spaced bracket members each having a foot member extending for-



ward thereof and a fastener member extending inwardly and rearwardly thereof. The wire member means engages the fastener member of each bracket member and is in pressure contacting relationship with the cathode ray tube.

3,576,396
MEANS FOR ADAPTING A TRANSMITTED SIGNAL TO A RECEIVER WITH SYNCHRONIZED FRAME RATES BUT UNEQUAL BIT RATES
Mark A. Sloate, Costa Mesa, Calif., assignor to Collins Radio Company, Cedar Rapids, Iowa
Filed Oct. 9, 1967, Ser. No. 673,664
Int. Cl. G06f 5/06; H04l 7/08
U.S. Cl. 178-69.5F 2 Claims

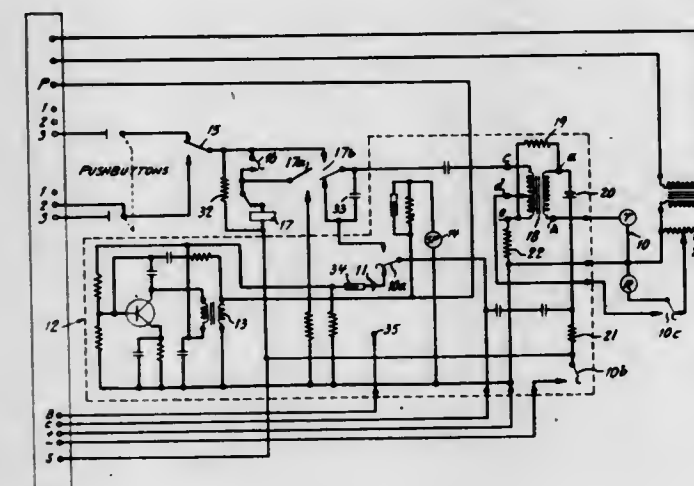


Means for synchronizing the unequal bit rates of a received signal and the receiver when frame rates are synchronized, comprising a shift register to which is supplied the received data bits. A counter means counts the bits received in each received frame. At each receiver frame synchronizing pulse the counter output is supplied to a matrix which responds thereto to address that shift register stage corresponding to the count in the counter and to connect said stage through the matrix to a gating means at the output thereof. Upon occurrence of each subsequent receiver bit-synchronizing pulse the counter is decremented by one and the gating means passes the data bit stored in the addressed shift register stage. Because of counter incrementing by each received data bit and counter decrementing each time a bit is read from the shift register, the resultant count will always correspond to that shift register stage containing the next data bit to be transferred therefrom.

3,576,397
FULL TRUNKAGE INTERCOMMUNICATION SYSTEM WITH PAGE ADAPTOR
Richard B. Pell, Wantagh, and Harry Cohen, Plainview, N.Y., assignors to Delta Communications Corporation
Filed Aug. 1, 1967, Ser. No. 658,311
Int. Cl. H04m 9/08
U.S. Cl. 179-1 10 Claims

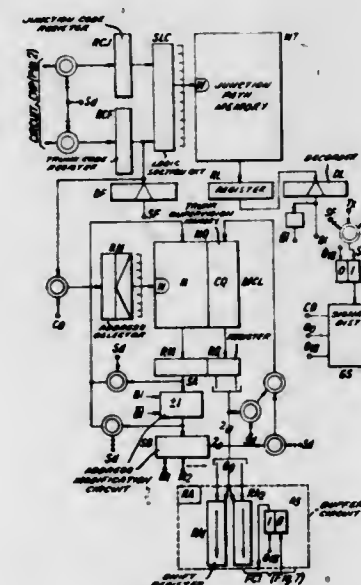
The intercommunication system comprises a plurality of identical stations which are connected together by a 100 per-

cent trunkage system. Each station is arranged so that a call cannot be completed to it when that station is connected to another station. Each station is further capable of being connected to a page unit which is common to all stations and by means of which all stations not actively in use are available to receive a page message without removing the handset (where



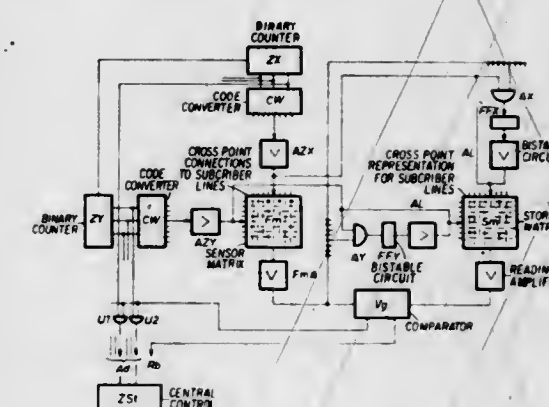
the stations are constructed similar to a telephone). The circuitry of each station is further arranged so that when a station is connected to a second station, attempts by other stations to call either of the stations so interconnected will be ineffective to sound a call signal at either of the engaged stations.

3,576,398
PATH HUNTING CIRCUIT IN A TELEPHONE NETWORK WITH A CENTRALIZED CONTROL UNIT
Jacques Henri Dejean, Ris-Orangis; Charles Henri Emile Grandjean, Villejuif, and Max Jean Pierre Leger, Paris, France, assignors to International Standard Electric Corporation, New York, N.Y.
Filed July 24, 1967, Ser. No. 655,435
Claims priority, application France, July 26, 1966, 70,951
Int. Cl. H04q 3/54, 3/56
U.S. Cl. 179-18 5 Claims



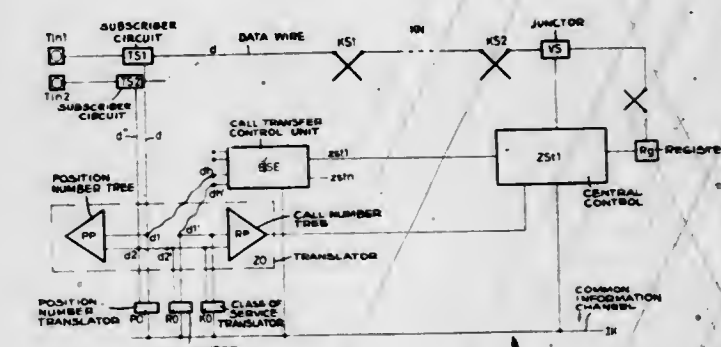
A central data processor for controlling the switching of a call through a multiexchange network. A table is developed to list switching paths through the network in the order of their normal occupation level, their priority assignments, and their busy hour priority. Data from the tables are stored on a semipermanent memory. This memory controls the order of search for an idle path through the exchange and causes the lowest occupation level, nonpriority direct paths to be searched first and sequentially searching, if necessary, passes to higher occupation levels and then to indirect paths in the order set out on the developed tables.

3,576,399
SCANNING MEANS FOR CENTRAL-CONTROLLED SWITCHING SYSTEMS
Hans Schweitzer, Bietigheim, and Helmut Willrett, Ditzingen, Germany, assignors to International Standard Electric Corporation, New York, N.Y.
Filed Jan. 9, 1968, Ser. No. 696,524
Claims priority, application Germany, Jan. 25, 1967, ST26407
Int. Cl. H04m 3/22
U.S. Cl. 179-18 3 Claims



A last look scanning technique is used to detect changes occurring on a line. To avoid a continuous report of "no change" to a centralized data processor, a decentralized detector looks at each line during the appropriate scan time slot. Only if there is a change does the decentralized detector communicate with the central processing equipment.

3,576,400
CALL TRANSFER CIRCUIT FOR PHONE EXCHANGE SYSTEMS
Heinz Schluter, Langenhorn, Germany, assignor to International Standard Electric Corporation, New York, N.Y.
Filed Feb. 9, 1968, Ser. No. 704,460
Claims priority, application Germany, Mar. 1, 1967, ST 26,567
Int. Cl. H04m 3/54
U.S. Cl. 179-18 14 Claims

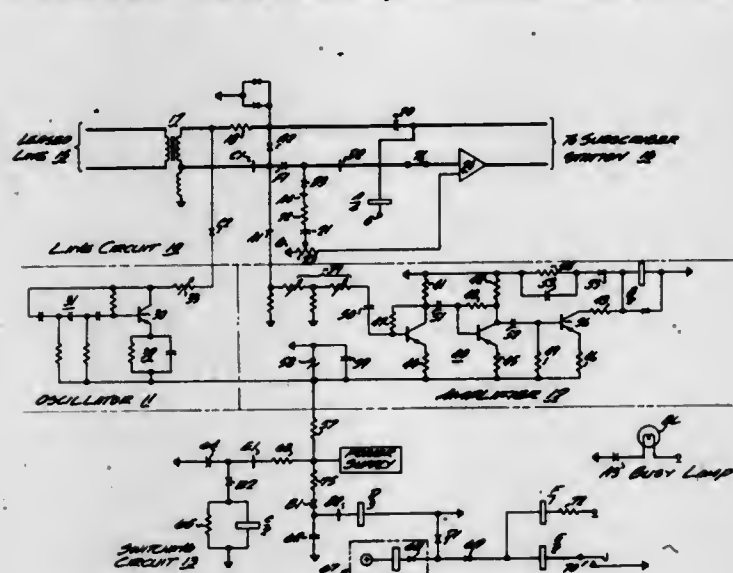


An arrangement is provided making it possible to transfer or forward calls received by one subscriber for reception by another subscriber. Means are provided by which the first subscriber is able to arrange to transfer or forward subsequent calls by dialing an appropriate code and also for assuring that only authorized call transfers are made. Call forwarding is achieved by changing the relationship between the directory number and equipment number in a translator by use of a control circuit.

3,576,401
BRIDGING UNITS FOR TERMINATING LEASED LINES IN TELEPHONE LINE CIRCUITS
Bruce Ronald Saxon, Harrisburg, Pa., assignor to International Telephone and Telegraph Corporation, New York, N.Y.
Filed Feb. 26, 1968, Ser. No. 708,237
Int. Cl. H04m 11/00
U.S. Cl. 179-18 3 Claims

Public address type paging equipment is used in connection with a telephone, such equipment being connected into

a conventional telephone system via leased lines. To page a subscriber at a distant location, a local subscriber sends a momentary burst of tone over the leased line. Equipment at the distant end of the line responds by connecting the line to



paging equipment for a period of time which is long enough to complete an average page, whereupon a private telephone conversation may be commenced between the local subscriber and the paged party.

3,576,402

CIRCUIT FOR COIN TELEPHONE SET IN MOBILE RADIO TELEPHONE SYSTEM

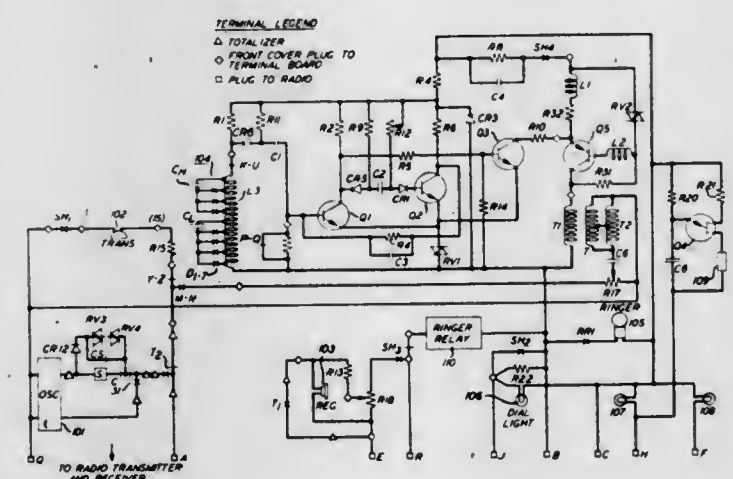
Gerald P. Baker, Englishtown, N.J.; John E. Edington, Indianapolis, and Ralston H. Robertson, Jr., Tippecanoe, Ind., assignors to Bell Telephone Laboratories, Incorporated, Murray Hill, N.J.

Filed Mar. 13, 1968, Ser. No. 712,701

Int. Cl. H04m 5/00

U.S. Cl. 179-41

1 Claim



In a coin telephone set adapted for use in a mobile radio telephone system that provides phone service on trains, for example, signaling reliability is enhanced by the employment of means including a timing circuit for ensuring the transmission of multifrequency dial signals of limited duration irrespective of the duration of the manual actuation of the dial.

3,576,403

MULTIFREQUENCY SIGNAL RECEIVER

Daniele Sellari, Jr., Corinth, Miss., assignor to International Telephone and Telegraph Corporation, New York, N.Y.

Filed May 14, 1968, Ser. No. 728,958

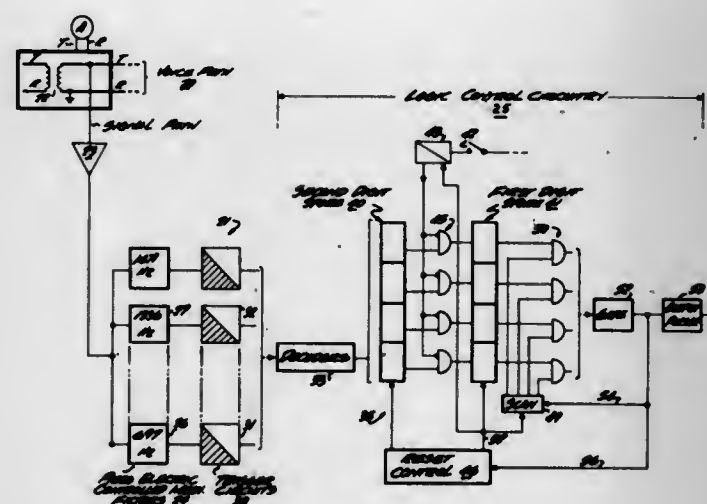
Int. Cl. H04m 1/50; H04q 9/12

U.S. Cl. 179-84UF

2 Claims

A plurality of electromechanical, piezoelectric filters are tuned to particular frequencies. A multifrequency electrical

signal causes mechanical resonance at the correspondingly tuned mechanical filters. Logical equipment interprets the



outputs of those filters and generates the indicated number of DC pulses.

3,576,404

DEVICE FOR OPTICAL AND MAGNETIC SOUND TRACK ON FILM REPRODUCTION

Shigeo Akasaka, Tokyo, Japan, assignor to Nippon Kogaku K. K., Tokyo, Japan

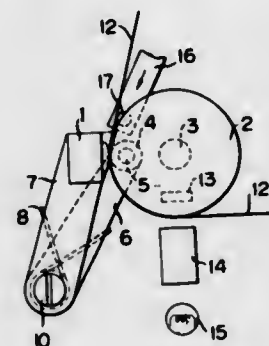
Filed Oct. 28, 1968, Ser. No. 771,231

Claims priority, application Japan, Oct. 31, 1967, 42/92075

Int. Cl. G11b 15/28, 15/66

U.S. Cl. 179-100.1

4 Claims



A sound motion picture projector of the type which employs film having either optical or magnetic sound tracks advanced with the sound track overhanging the sound drum employs means for projecting light through the sound track and detecting means for receiving the light. A magnetic sound head is positioned to engage the sound track as it travels around the drum. A pressure roller presses the sound track portion of the film toward the magnetic sound head. A first pivot lever carries the magnetic sound head and is pivotable perpendicularly to the axis of the sound drum. A second pivot lever carries the pressure roller and is pivotable in parallelism to the first pivot lever. A spring member biases both the pivot levers to urge the magnetic sound head and the pressure roller toward each other so that the magnetic sound head is positioned by the film when the film is engaged by the sound head and roller.

3,576,405

UNITARY REGISTRATION APPARATUS FOR DICTATING MACHINES AND SYSTEMS FOR MARKING DICTATION INTERVALS

William L. Dollenmayer, Lexington, Ky., assignor to International Business Machines Corporation, Armonk, N.Y.

Division of Ser. No. 452,102, Apr. 30, 1965, Pat. No. 3,426,161.

Filed Feb. 4, 1969, Ser. No. 796,372

1969, Ser. No. 796,372

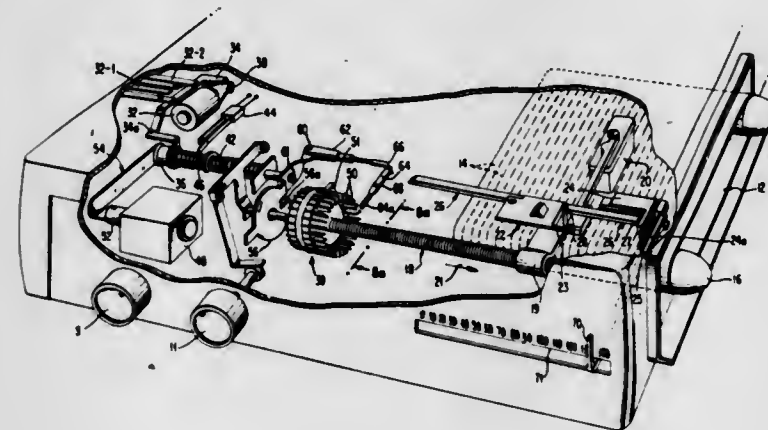
Int. Cl. H04m 1/10; G11b 21/12

U.S. Cl. 179-100.1DR

7 Claims

The invention relates to registration devices for dictating equipment for indicating the relative position of a transducer

with respect to a record media. The registration apparatus comprises a pinwheel memory with individual settable pins that indicate a particular point of reference along a helical track. Prior to any backspacing operation of the transducer for reviewing previously dictated material, the pinwheel



memory is set to indicate the exact point of farthest advance during the dictating interval just completed. Subsequently, the memory control portions control the drive to insure that the transducer returns to the point of farthest advance. In the next dictating interval, the same set pin serves as a letter lockout to prevent review of material previously dictated.

3,576,406

PROCESS AND APPARATUS FOR PROVIDING A TIME DELAY IN THE REPRODUCTION OF INFORMATION STORED ON A CIRCULATING RECORDING MEDIUM

Louis Court, Dugny, and Patrick Magnien, le Mesnil-Saint-Denis, France, assignors to Commissariat A L'Energie Atomique, Paris, France

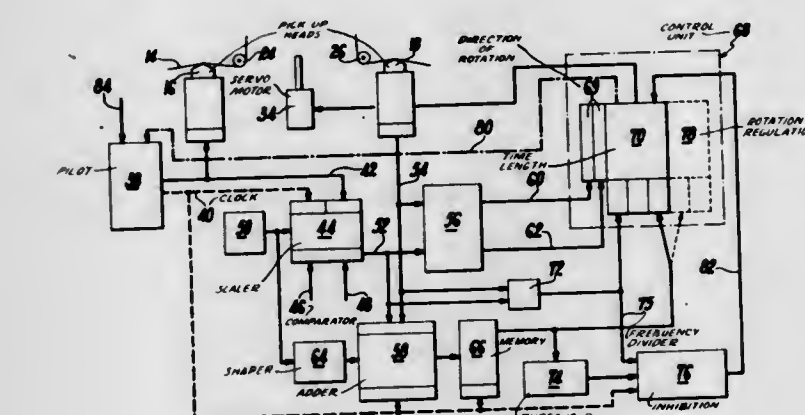
Filed Feb. 4, 1969, Ser. No. 796,483

Claims priority, application France, Feb. 14, 1968, 139893

Int. Cl. G11b 27/22

U.S. Cl. 179-100.2

8 Claims



Method and apparatus of producing an adjustable time-delay in the reproducing of information which is recorded on a magnetic tape, said time-delay being materialized by an open loop upstream of a reproducing head. A signal is recorded on the tape upstream of said loop and simultaneous the measurement of the predetermined time-delay is initiated; the passage of said signal is detected by the reading head and the absolute value and the direction of the time interval which elapses between the end of measurement of said time-delay and the detection are measured. The length of the loop is automatically modified if necessary, by an amount which increases with said absolute value and in a direction corresponding to the reduction of said time interval to zero.

885 O.G.—30

3,576,407 TIME CONTROL SYSTEM AND METHOD FOR PRODUCING TELEVISION, RADIO AND VIDEO TAPE PROGRAMS AND FOR OTHER USES

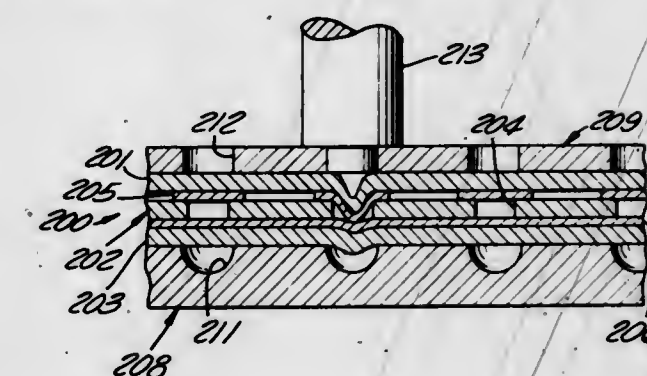
Albert Lee Stephens, Jr., Los Angeles, Calif., assignor to Morris Lavine

Continuation-in-part of application Ser. No. 500,818, Oct. 22, 1965, now abandoned. This application Mar. 14, 1966, Ser. No. 534,090

Int. Cl. H01h 43/08

U.S. Cl. 200-46

3 Claims



The control card apparatus includes a first insulative sheet having on one surface thereof a plurality of spaced parallel conductor elements of a material sufficiently ductile that it may be deformed without breaking or separating. A second insulative sheet includes a plurality of similarly spaced conductor elements on one surface thereof. The two sheets including conductive strips are sandwiched with their conductive areas facing one another to a third insulative layer having a plurality of openings, each of which openings corresponds to the crossover point of the conductive areas. Connection to selectively desired crossover points is made by forcing a punch, stylus or the like through the associated opening which deforms the one conductor element into contact with the other element at the given crossover.

3,576,408

SWITCH ACTUATOR FOR VACUUM CLEANER

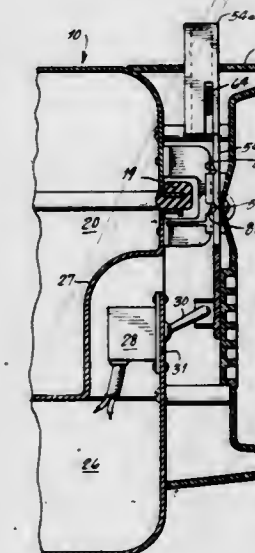
Carl E. Meyerhoefer, Little Neck, N.Y., assignor to The General Signal Corporation, New York, N.Y.

Filed Jan. 12, 1970, Ser. No. 2,196

Int. Cl. H01h 35/00, 3/02

U.S. Cl. 200-52

10 Claims

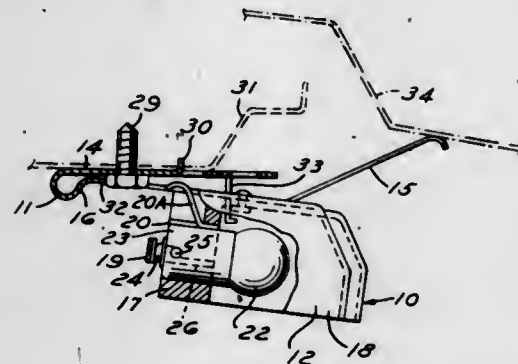


A switch actuator especially adapted for use in canister-type vacuum cleaners for effecting the movement of a motor switch which is required to be disposed in one part of a canister, the control of which is manipulatable from the other part. The switch actuator is so constructed as to allow for facile and damage-proof operation, pushbutton control being provided on one part of the canister which is hinged to swing away from the other part.

3,576,409 TRUNK LIGHT SWITCH AND HOUSING

Theodore E. Fiddler, 1268 Suffield Drive, Birmingham, Mich.
Filed Jan. 26, 1970, Ser. No. 5,549
Int. Cl. H01h 3/16

U.S. Cl. 200—61.62



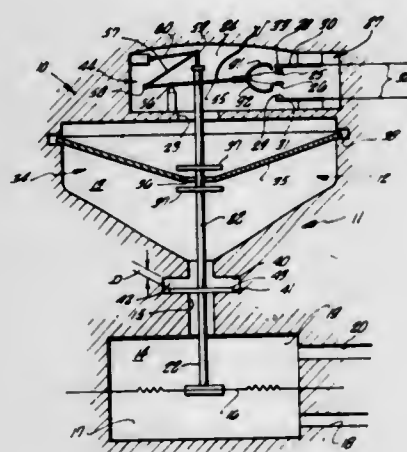
A unitary combination automatic on-off switch and lamp housing for lighting the interior of automobile trunks and the like with the opening of the trunk door lid comprising a mounting and actuator spring; said spring having a grounded base for mounting, an arm for actuating, and an intermediate span; and a housing secured to the span including a lamp socket and lamp ground and current terminal wherein the spring moves the body to engage the ground terminal with grounded structures to close a circuit through the lamp when the door is open and out of engagement with the actuator arm; and the arm, when engaged by the door when closed, moves the body to disengage the ground terminal with grounded structure to open a circuit through the lamp.

3,576,410 CONTACT SUSPENSION FOR A BISTABLE ACTUATOR

Irven H. Culver, Playa Del Rey, Calif., assignor to Southwestern Industries Inc., Los Angeles, Calif.
Filed Mar. 21, 1968, Ser. No. 715,022
Int. Cl. H01h 13/24, 13/28

U.S. Cl. 200—67

19 Claims



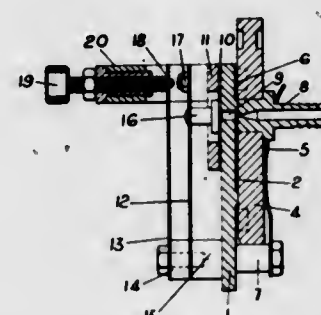
In a bistable switch mechanism having a biasing system defining a nonlinear negative spring rate which renders the mechanism responsive to excursions of actuating stimuli outside a selected range of values of such stimuli and which has a substantially lower negative spring rate for one position of the switch than for the other stable position, there is provided a resilient mounting for a movable contact which has structural configuration and spring stiffness arranged relative to the spring characteristics of the biasing system to define an overall negative spring rate for the mechanism which has a higher value of negative spring rate, for the one position of the switch, than the spring rate of the biasing system alone, when the force versus deflection curve of the bias system has an average slope between limits corresponding to said stable positions which is equal to the average slope of the corresponding curve of the entire mechanism between like limits, so that the operating characteristic of the mechanism

in either direction becomes more nearly uniform and optimum.

3,576,411 APPARATUS FOR DETECTING DISCONTINUITIES IN A MOVING ARTICLE

Georges Baroin, Val De Marne, France, assignor to Rhone-Poulenc S. A., Paris, France
Filed Jan. 3, 1968, Ser. No. 695,456
Claims priority, application France, Jan. 30, 1967, 93026
Int. Cl. H01h 35/24, 35/40

U.S. Cl. 200—81.9 7 Claims

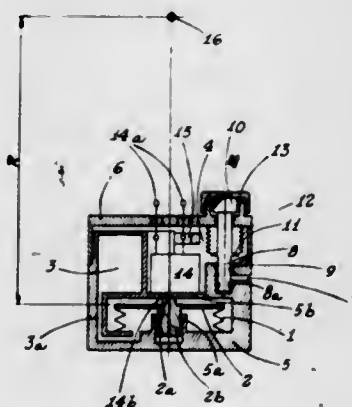


The invention relates to an apparatus for detecting discontinuities in a moving article, e.g. a punched tape, in which a jet of gas is directed onto one side of the article. If a discontinuity is present, this is detected by a pressure sensitive device, e.g. a diaphragm on the other side of the article which is actuated by the gas jet, to operate an electrical device, e.g. a switch.

3,576,412 PRESSURE DROP DETECTOR WITH TESTING MEANS, CENTRIFUGAL FORCE COMPENSATING MEANS, AND TEMPERATURE COMPENSATING MEANS

Jean Jullien-Davin, Valence (Drome), France, assignor to Crouzet, Paris, France
Filed Dec. 3, 1968, Ser. No. 780,747
Claims priority, application France, Dec. 12, 1967, 131985
Int. Cl. H01h 35/28, 35/32; G08b 29/00

U.S. Cl. 200—83 3 Claims



Pressure drop detector which is connectable to a sealed enclosure for detecting leakage from said enclosure and comprising a casing which forms a chamber, a flexible wall element disposed within said chamber and responsive to the pressure existing within said enclosure, and a switching unit controlled by said flexible wall element so as to carry out a reversal of state when the pressure within the enclosure falls as a result of leakage, wherein, in order to compensate for pressure variations arising from variation in the ambient temperature and in order to render the apparatus unresponsive to ambient pressure, said chamber is subdivided into two cavities separated from each other by said flexible wall element, one of said cavities which is utilized for a measurement of pressure being connectable to the enclosure to be monitored while the other cavity is filled with gas at a reference pressure which is substantially in the vicinity of the pressure which prevails within the enclosure to be monitored in order

that the variations in ambient temperature should modify the pressure to be checked and the reference pressure in the same manner, the reference cavity having in addition a volume which reduces to a negligible value the variation in volume corresponding to the range of travel of the wall element which is necessary for the operation of the switching unit.

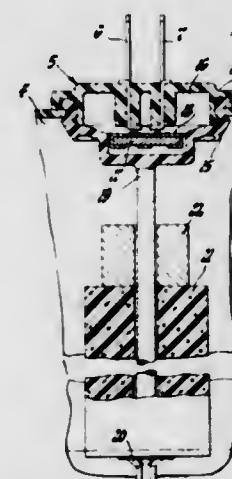
The movable portion of the flexible wall element has a mass which is such that centrifugal force applied to said mass is equal to the variation in the force exerted by the pressure on said portion of the flexible wall. The detector also has a testing means to assure accurate control of the operation and sensitivity of the device.

3,576,413 WASHER FLUID LOW LEVEL WARNING SWITCH

John E. Creager, Fenton, and John A. Stewart, Flint, Mich., assignors to General Motors Corporation, Detroit, Mich.
Filed Dec. 2, 1969, Ser. No. 881,543
Int. Cl. H01h 35/18

U.S. Cl. 200—84

5 Claims



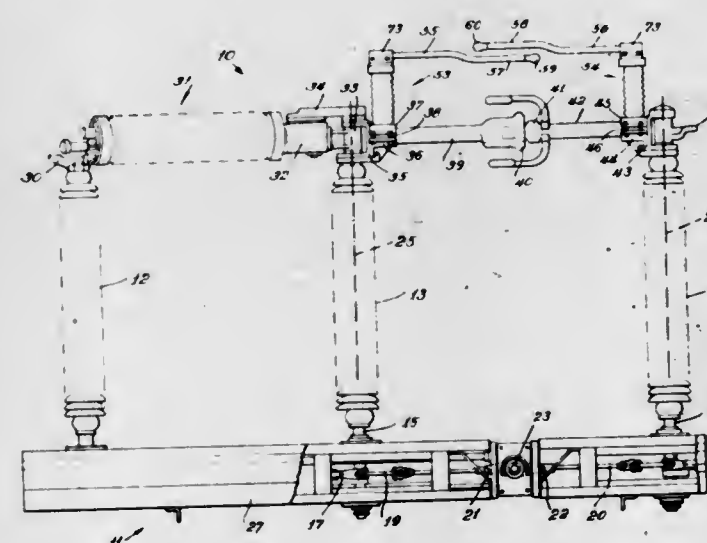
A windshield washer fluid low level indicator comprising a single magnet positioned between a pair of steel terminals and a steel spacer mounted on a float within a washer bottle. When the fluid level is above a predetermined height the steel spacer attracts the magnet to open a warning circuit, and when the fluid is below a predetermined level the steel terminals attract the magnet to close the warning circuit.

3,576,414 HIGH VOLTAGE SWITCH WITH PREINSERTION RESISTOR

John J. Mikos, Highland Park, Ill., assignor to S & C Electric Company, Chicago, Ill.
Filed Oct. 18, 1968, Ser. No. 768,825
Int. Cl. H01h 33/16

U.S. Cl. 200—144AP

4 Claims



A high voltage center break disconnecting switch has a resistor assembly upstandingly mounted on, movable with, and

electrically mounted on an insulator pivotable about a vertical axis. A conducting arm extends from the other end of each resistor assembly toward the other arm to complete a conductive path in the atmosphere between their distal ends and through the resistor assemblies in advance of the completion of a conductive path through the switch blades as they are swung into contact engagement at their distal ends.

3,576,415 ELECTRICAL CONTACT SURFACE PLATE HAVING A MERCURY AMALGAM

Childress B. Gwyn, Jr., Wethersfield, Conn., assignor to Textron Inc., Providence, R.I.
Filed Oct. 26, 1967, Ser. No. 678,174
Int. Cl. H01h 1/02

U.S. Cl. 200—166

4 Claims



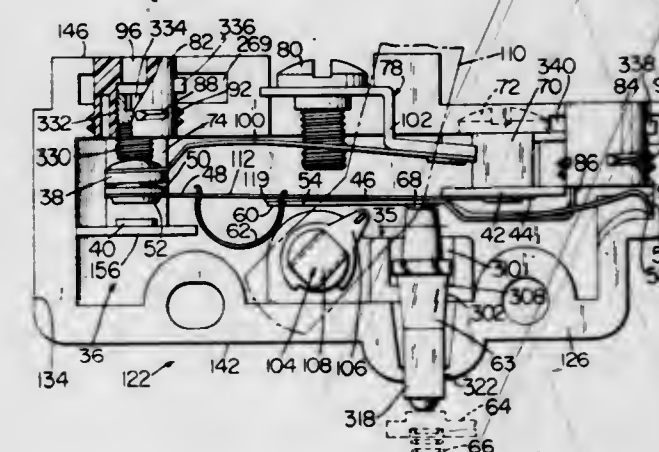
An electrical contact surface is prepared by forming a thin nickel or cobalt plate over a conductive substrate, coating the nickel plate with a thin silver plate, and thereafter coating the silver surface with mercury and causing the mercury to amalgamate into the lower nickel and silver plates. The silver layer may be further coated with a layer of gold or a layer of one or more of the platinum group family metals before the application of the mercury surface. Cadmium may be applied over the mercury layer before amalgamating the mercury into the silver layer.

3,576,416 ELECTRICAL SWITCHING MECHANISM

Arthur L. Good, Elkhart, Ind., assignor to Robertshaw Controls Company, Richmond, Va.
Filed Dec. 5, 1968, Ser. No. 781,307
Int. Cl. H01h 1/34

U.S. Cl. 200—166

21 Claims

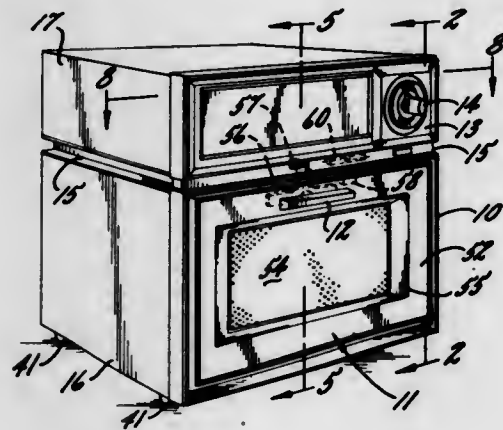


A versatile single pole, double throw switching mechanism is provided with two removable terminal connections to upper and lower stationary contacts. Either contact with its terminal connector may be removed and replaced by an electrically isolated "dead" stop member to produce a single pole, single throw switching mechanism. The vacancy produced by such removal may be covered by a cover plate. One of the stationary contacts is adjustable by a screw member. A cam member adjusts the flexing of the actuator blade. Another screw member adjusts the bias of the actuator blade. Two or more switching mechanisms may be unitarily mounted side by side. The casing may be formed by two

abutting casing cups. Barbed switch members hold the cup members together. A flat actuating plunger has dirt removing recesses.

3,576,417 CONSTRUCTION FOR ELECTRONIC OVEN APPLIANCES

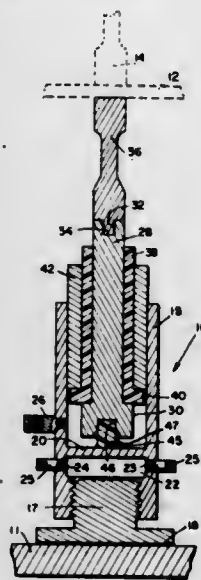
Egbert M. Tingley, Kankakee, Ill., assignor to Roper Corporation, Kankakee, Ill.
Filed Sept. 17, 1969, Ser. No. 858,793
Int. Cl. H05b 9/00, 5/00
U.S. Cl. 219-10.55 5 Claims



An electronic microwave oven having a unitary cast door frame to which rearwardly extending channel members are attached for the support of a component tray which forms the oven roof and supports relatively heavy electronic oven components required for the generation of microwave energy. The channel sections are hollowed to permit insertion of the user's fingers for lifting, and the hollows extend to the rear of the oven unit to allow the unit to be received by a pair of horizontal parallel support bars in a built-in wall installation. The escape of microwave energy is prevented by providing interturned flanges for the sidewalls, component tray and oven floor portions, and the oven door is sealed by means of a compressible annular metallic seal which assures a continuous electrical connection between the door and door frame.

3,576,418 WELDING TOOL

Oran J. Sands, and Charles W. Smith, Columbus, Ind., assignors to Arvin Industries, Inc., Columbus, Ind.
Filed Oct. 30, 1968, Ser. No. 771,729
Int. Cl. B23k 11/10
U.S. Cl. 219-86 6 Claims

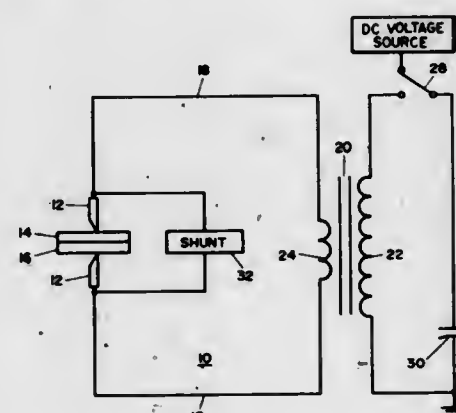


A welding tool in which there is provided a hollow cylindrical jacket made of electrically conductive material and

adapted to be connected to an electrical power source. The jacket is closed at one of its ends and is provided with a web extending thereacross to define a chamber between said web and its closed end for the reception of a circulating coolant. A welding tip projecting outwardly from the jacket is mounted in electrically insulating guide means slidably carried in said jacket. Said tip is provided with a displaceable member formed of electrically insulating material interposed between it and the jacket web for normally supporting said tip in spaced relation to said web. When an axially directed force is applied to said tip, the member interposed between it and the web will be displaced to thus permit said tip to be moved into electrically conductive relationship with said web and power source.

3,576,419 SHUNT STABILIZATION OF WELDER

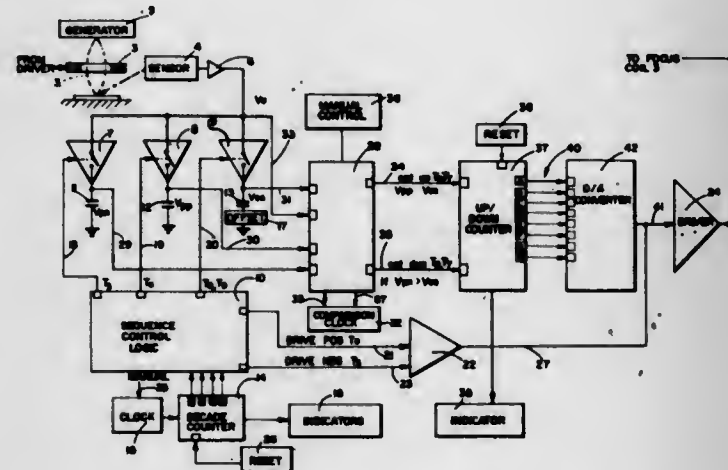
Joseph T. Wallace, Phoenix, Ariz., assignor to Motorola, Inc., Franklin Park, Ill.
Filed Feb. 25, 1969, Ser. No. 801,934
Int. Cl. B23k 9/10
U.S. Cl. 219-108 4 Claims



This invention discloses a resistance welding system involving a power level between 2kw. and 100kw. suitable for use in semiconductor lead welding applications where the total circuit impedance is three or more times that of the weld area and the current is in the range of 2,000 to 15,000 amperes or higher. The welding system features a shunt around the weld area where the shunt resistance is comparable to the resistance of the weld area.

3,576,420 ELECTRON BEAM FOCUS CONTROL SYSTEM

William F. Iceland, Los Alamitos; Frank H. Grigg, Fullerton, and Charles J. McGuire, Cypress, Calif., assignors to North American Rockwell Corporation
Filed Apr. 2, 1970, Ser. No. 24,998
Int. Cl. B23k 15/00
U.S. Cl. 219-121EB 9 Claims



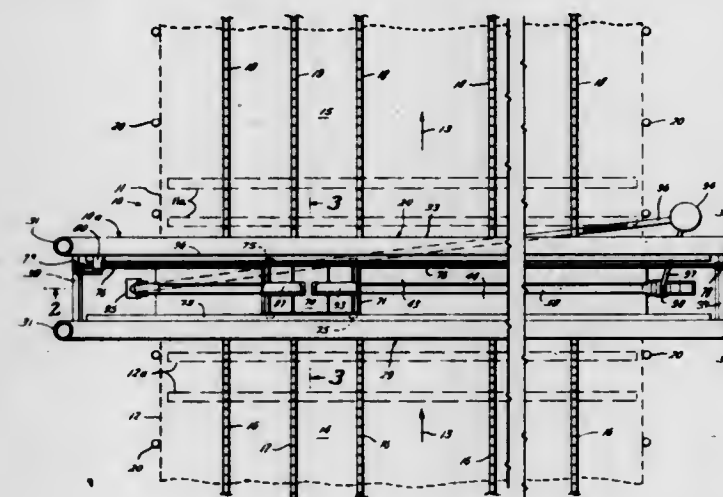
The temperature of an electron beam at the face of a workpiece is sequentially sampled and a voltage representing

the temperature is stored for comparison with prior voltage samples. The focus coil current is increased or decreased as a function of the relative difference between the compared samples. When the samples are equal, the comparison is discontinued.

The sampling sequence of the system is controlled by a counter operating at one rate and the comparison is controlled by logic gated at a relatively higher rate so that the change in the focus coil current can be completed before the next sample is taken.

3,576,421 WELDING MACHINE

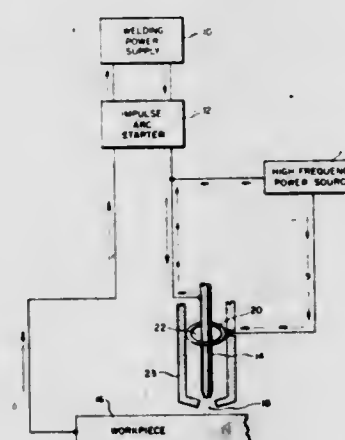
Harry J. Fiegel, Jr., Galveston, Tex., assignor to Kelso Marine, Inc.
Filed Apr. 16, 1969, Ser. No. 816,665
Int. Cl. B23k 9/00
U.S. Cl. 219-130 17 Claims



A conveyor system moves a pair of structural steel plates into position to be butt welded to one another. Upper and lower clamping assemblies move into engagement with both plates near the edges to be welded. A body of welding flux contained in a flux trough located on the lower clamping assembly is urged against the underside of the plates along and to either side of the edges to be welded. A welding mechanism mounted on a movable carriage supported by the upper clamping assembly moves along the upper side of the plates adjacent the edges to be welded for welding such edges to one another.

3,576,422 PREIONIZING WELDING APPARATUS

William M. Beaupre, Los Angeles, and Donald R. Lien, La Habra, Calif., assignors to North American Rockwell Corporation
Filed July 11, 1969, Ser. No. 841,073
Int. Cl. B23k 9/00
U.S. Cl. 219-130 9 Claims

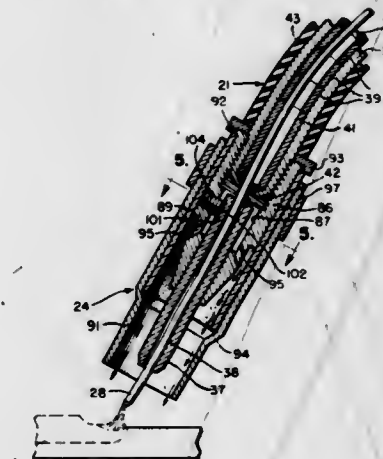


Welding apparatus that eliminates the so-called "high frequency cracking"—while still using high frequency energy

to minimize arc extinguishment, and to facilitate the starting of the welding arc.

3,576,423 ARC WELDING GUN

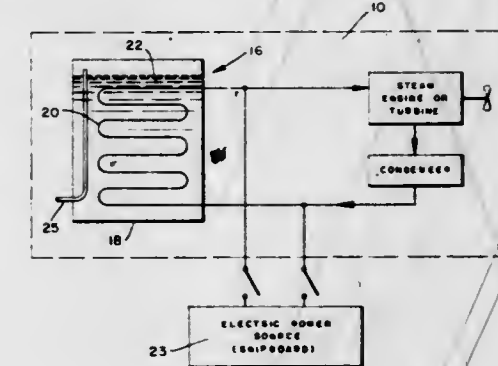
Arthur A. Bernard, Beecher, and Richard A. Bernard, Flossmoor, Ill., assignors to Bernard Welding Equipment Company, Beecher, Ill.
Division of Ser. No. 650,051, June 29, 1967, Pat. No. 3,469,070,
Filed June 5, 1969, Ser. No. 840,582
Int. Cl. B23k 9/00 4 Claims



A high current capacity arc welding gun for gas-shielded, continuous feed, consumable electrode arc welding processes. Features include: a unique handle cooled by convection air flow; an improved head assembly having a unique electrical insulating ion impervious shield for preventing destructive arcing to the gas nozzle, an improved shielding gas flow path through the head assembly which additionally cooperates with the ion impervious shield to prevent gas nozzle arcing, a unique current contact top which attaches to the head assembly by a novel curved wedge clamping concept and which is produced by an improved, versatile, and inexpensive method of manufacture that increases the copper density and refines the grain structure in the current contact tip for greater life; an improved gooseneck lining for longer life and reduced friction; a heat protected control switch assembly of rugged construction and unique trigger operation; and an improved welding cable connection assembly.

3,576,424 METHOD AND APPARATUS FOR MELTING A SALT BED IN A STEAM GENERATOR

John P. Strapp, Glendale, and Norman S. McDonald, Sierra Madre, Calif.
Filed May 31, 1967, Ser. No. 644,437
Int. Cl. F22b 1/28 2 Claims



A steam generator which includes a container, a meltable and electrically nonconductive salt disposed in the container to form a salt bed, and a high electrical resistance steam generating coil disposed in the salt bed so that an electric

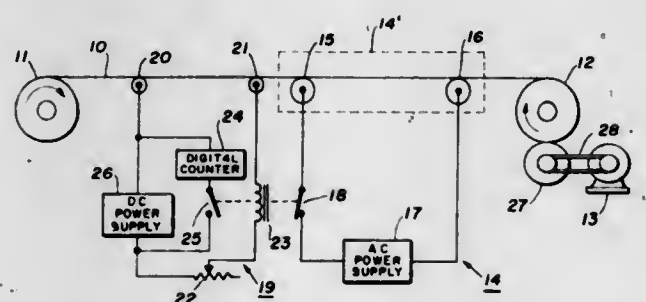
current can be passed through the coil to heat the salt bed and then the heat of the salt bed can be used to generate steam in the coil.

3,576,425

APPARATUS AND METHOD FOR DETECTING SPLICES
Richard M. Owen, Cary, and John W. Brown, Raleigh, N.C., assignors to Monsanto Company, St. Louis, Mo.
Filed Dec. 3, 1969, Ser. No. 881,786
Int. Cl. H05b 1/02

U.S. Cl. 219-505

12 Claims

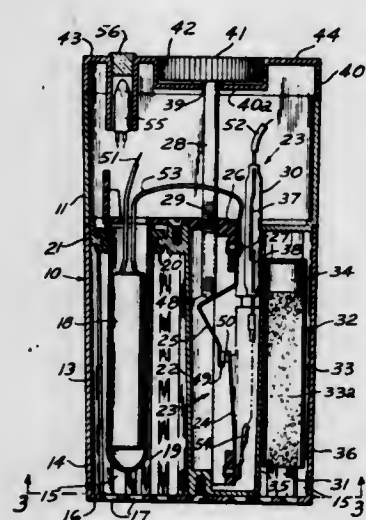


A spliced conductive fiber is passed through a region in which an electric current is conducted along the fiber. The variations in the current (or voltage) due to the presence of a splice are detected. In one embodiment, the variations are utilized to control a heat source used in fiber processing to prevent rupture of the fiber at the splice as the spliced portions of the fiber pass through the heating zone.

3,576,426

THERMOSTATICALLY CONTROLLED ELECTRIC AQUARIUM WATER HEATER
Walter Sesholtz, Park Ridge, N.J., assignor to Sternco Industries, Inc., Harrison, N.J.
Filed Oct. 28, 1968, Ser. No. 771,036
Int. Cl. H01k 63/02; H01h 36/02; H05b 3/06
U.S. Cl. 219-523

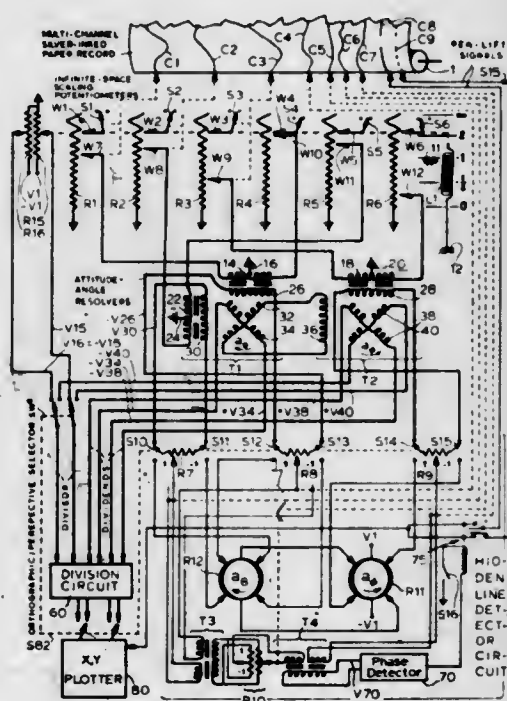
3 Claims



A water heater for home aquariums, the device being adapted for partial immersion in the aquarium water. It comprises a casing the upper portion of which has a multiple-size bracket for attachment to the rim of a selected aquarium, the lower portion housing a thermostat-float switch assembly electrically connected to an electric heating element. The said lower portion is defined by an apertured shell serving both as a water-permeable housing the protective shield for the heater and its control components. The water to be heated enters the interior of the device for coaction with the heater components, thereby performing the heat-controlling operations itself by actuating a switch-operated float member. The device is adapted for attachment to aquariums of different rim thicknesses by said bracket which is of specially stepped construction.

3,576,427
PERSPECTIVE OR ORTHOGRAPHIC PLOTTER
Bernard M. Taylor, Jr., 1043 W. 35th St., Los Angeles, Calif.
Filed Jan. 19, 1967, Ser. No. 610,301
Int. Cl. G06f 3/00; G06k 15/00
U.S. Cl. 235-61.6

4 Claims

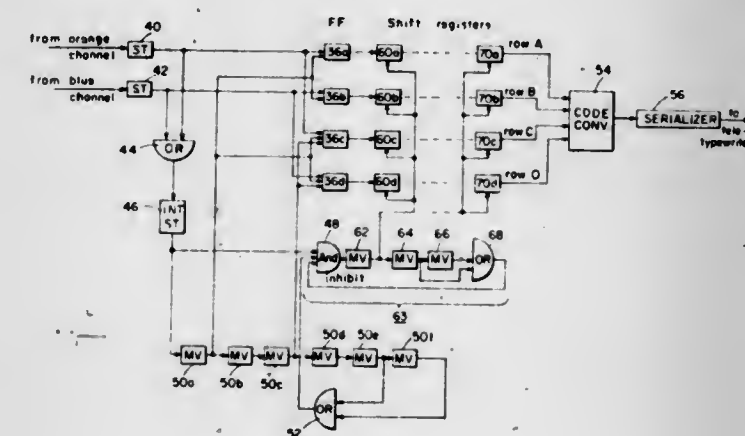


This invention relates to analog computing systems and apparatus for producing selected two-dimensional perspective or orthographic projections; and it relates more particularly to an improved analog computing system and apparatus for plotting such projections automatically in response to an input record.

3,576,428

WIDEBAND LABEL READING APPARATUS
Christos B. Kapsambelis, Canton, and Francis H. Stites, Wayland, Mass., assignors to Sylvania Electric Products, Inc.
Filed Apr. 27, 1967, Ser. No. 634,188
Int. Cl. G06k 7/12
U.S. Cl. 235-61.11E

7 Claims



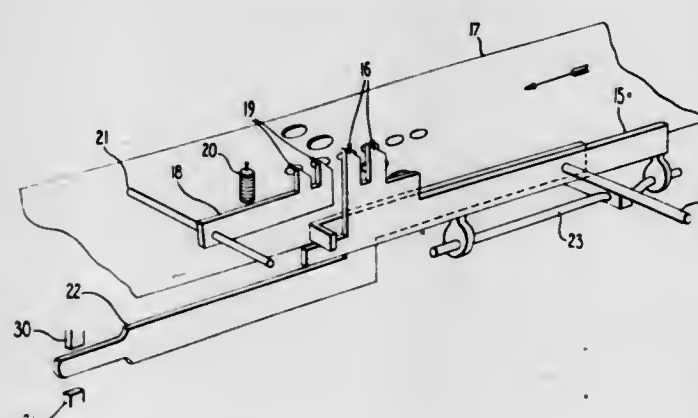
An electro-optical label reading system having relatively wide depth of field and employing a label coded in a two-position and three-position quadricolor code via combinations of orange, blue, white and black retroreflective stripes, with a third stripe added to those combinations in which the second stripe is ordinarily black, to prevent processing of spurious signals. The first stripe of each combination is one unit high and the second stripe is two units high, while in those combinations having an added stripe each of the three stripes is one unit high. The third stripe produces a signal which is processed by the decoding logic along with data pulses to prevent the processing of spurious signals which could enter the system but for the added stripe. The signal from this first stripe is deleted from the readout of the data to

retain compatibility with signals from the two-stripe combinations.

3,576,429

TAPE READER
Terje Thauland, Ski, Norway, assignor to Creed & Company, Hollingbury, Brighton, Sussex, England
Filed Mar. 21, 1968, Ser. No. 715,077
Claims priority, application Great Britain, May 12, 1967, 22,152
Int. Cl. G06k 7/04; B65h 5/04
U.S. Cl. 235-61.11

5 Claims

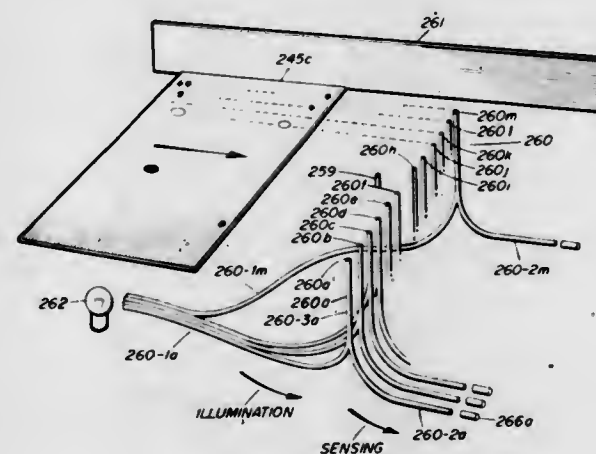


A tape reader is provided in which the feeding and reading pins are carried in a reciprocating frame moving substantially parallel to the tape so as to give a wiping motion to the associated electrical contacts. The pins are sawtooth-shaped and spring loaded so as to slide under the tape on a reverse stroke, the tape being retained by retaining pins.

3,576,430

OPTICAL TICKET READER AND ENCODING MEANS
William E. Fickenscher, Baltimore, and James E. Harris, Owings Mills, Md., assignors to The Bendix Corporation
Filed Apr. 29, 1968, Ser. No. 724,855
Int. Cl. G06k 7/14; G02b 5/16; H01i 5/16
U.S. Cl. 235-61.11

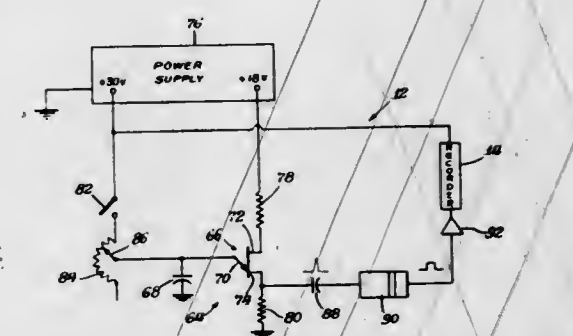
7 Claims



An optical ticket reader and encoding means utilizing fiber optics for illuminating and reading a specially prepared ticket or other surface having optically recognizable indicia arranged on an optically recognizable background. A ticket is passed over a plurality of sensors, one sensor being provided for each group of indicia to be read, which illuminate and read the ticket. The information thus read is then encoded in binary form. Additionally, keying indicia on the ticket are provided to indicate the general information contained on the ticket, these keying indicia being read by the reader and interpreted by the encoder to form a binary bit train correlative to the information read. The keying indicia are also used by the optical ticket reader to check the accuracy of the optical reader.

3,576,431
RECORDING AND COMPUTING DEVICE
Edward F. Zaccard, Burlington, Wis.; Lester R. Rabb, Greensburg, Pa., and Henry A. Mathisen, Northbrook, Ill., assignors to Addressograph-Multigraph Corporation, Mount Prospect, Ill.
Filed Nov. 16, 1967, Ser. No. 683,713
Int. Cl. G06m 7/06
U.S. Cl. 235-92

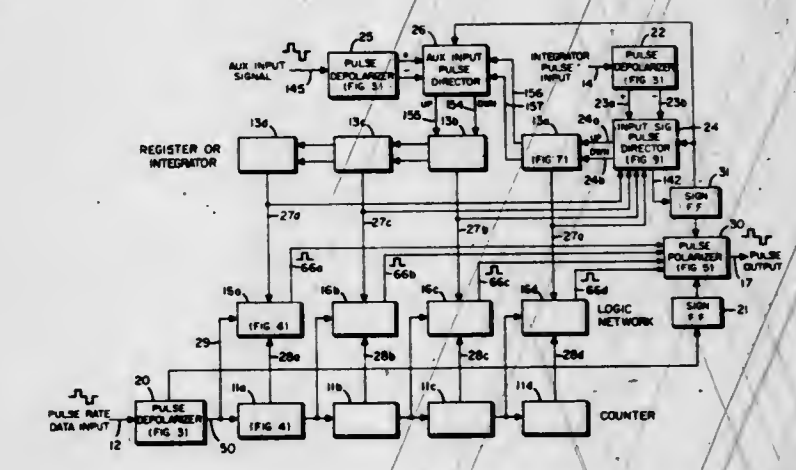
10 Claims



The apparatus of this invention programs a duplicating machine 16 to make a preset number of copies, computes a cost charged per copy based on the number of copies programmed, and records the cost computed in terms of relative numerical values. A computing instrument 12 provides, as copies are made, differing numbers of pulses per copy. The pulses activate a recorder 14 which gives a cumulative numerical indication of the number of pulses received; each pulse received by the recorder 14 corresponds to a fixed unit of cost. A variable resistor control element 84 in response to the occurrence of events regulates the pulse output of the instrument 12 so that fewer pulses are provided as more copies are made.

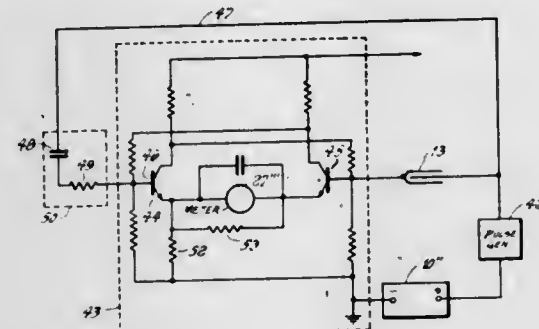
3,576,432
DYNAMIC DIGITAL CALCULATING APPARATUS FOR ANALOG FUNCTIONS
Norman J. Braaten, King Road, Rte. 1, Eagan Township, Dakota County, Minn. 55068
Filed Feb. 14, 1969, Ser. No. 799,319
Int. Cl. G06j 1/00
U.S. Cl. 235-150.3

13 Claims



A register means, a counter and logic network for combining the contents of the two form a basic functional module. Although the register means may contain fixed data, in general it and the counter receive variable data in pulse train form. After the data has been suitably processed within a module, the module produces an output signal train of pulses which is a function of the input. The counter is incremented by each signal input pulse, positive or negative. The pulse responsive register is also a counter but it is incremented or decremented according to the sign of the input data. By suitably sensing and recording the sign of the input data, the output data pulses are properly polarized to carry the correct arithmetic sign. All pulses in the system are produced from a common clock frequency source so that all the pulse widths and shapes are substantially the same although the pulse trains may be and generally are of different pulse rates. In

ments, a pulse generator for providing a periodic feed through pulse to the G.M. tube. The feed through pulse is



added to a tube pulse only when they occur simultaneously, to provide a high amplitude counting pulse for the meter circuit.

3,576,441

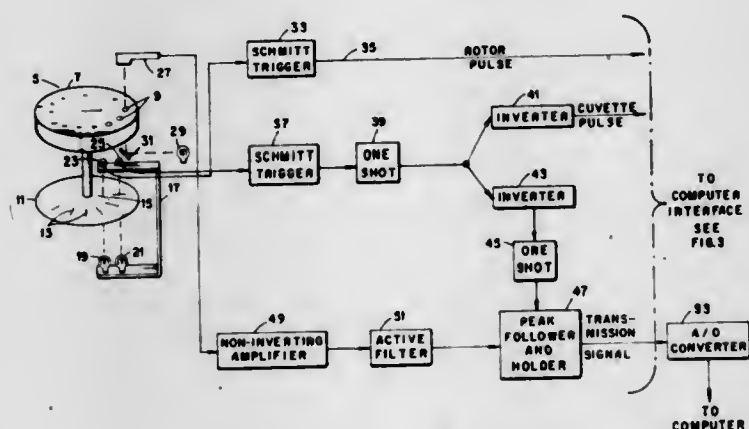
ANALYTICAL PHOTOMETER-TO-DIGITAL COMPUTER INTERFACING SYSTEM FOR REAL TIME DATA REDUCTION

Raymond K. Adams, Oak Ridge, and John T. Hutton, Kingston, Tenn.

Filed Mar. 17, 1970, Ser. No. 20,288
Int. Cl. G01n 21/26; G08c 9/00

U.S. Cl. 250-218

6 Claims



A computer interfacing system has been provided for directly presenting transmission value data signals into a computer from a photometric analyzer of the type wherein a multiplicity of discrete sample-containing chambers with axially aligned transparent windows are arranged within a centrifuge rotor, thereby providing rapid storage and reduction of photometric data. Synchronizing signals, one for each sample, taken from the rotor are used to trigger a sample and hold circuit connected to receive the corresponding transmission signal, which then allows the peak voltage of the signal to be read into the computer.

3,576,442

AMPUL INSPECTOR USING MULTIPLE LINE SCAN CATHODE-RAY TUBE

Hoshitaka Nakamura, No. 33, 2-chome Ichigaya Kaga-cho Shinjuku-ku, Tokyo, Japan

Filed May 10, 1967, Ser. No. 637,461

Claims priority, application Japan, Nov. 26, 1966,
41/773312; 41/77332

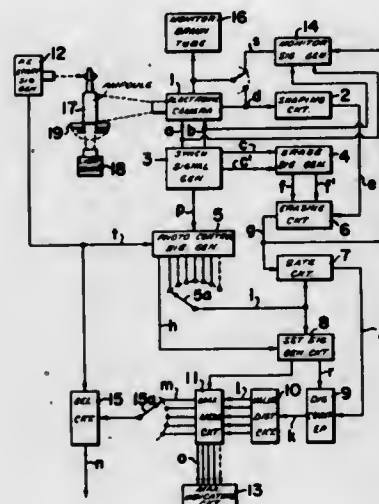
Int. Cl. G06m 7/00

U.S. Cl. 250-223

10 Claims

A device for electronically scanning, with a multiple line scan, a rotating ampul to detect foreign particles therein, a

signal being produced in which pulses represent the particles. The pulses are counted in the binary system and a decimal



count derived therefrom which is compared with a selected standard. A Braun tube is used to display the particles.

3,576,443

AC AND DC REGULATOR CIRCUIT

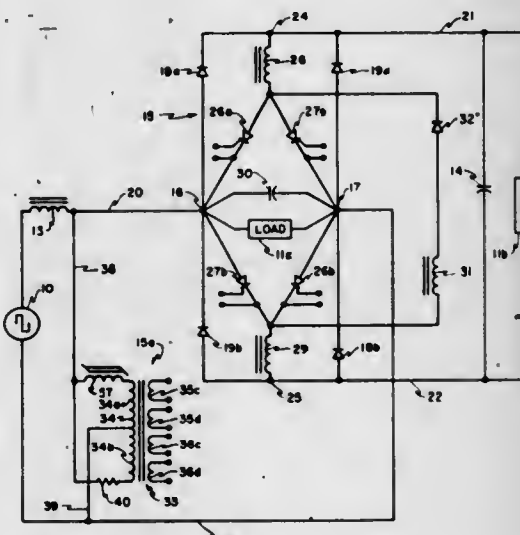
Harold J. Brown, Lorain, Ohio, assignor to Lorain Products Corporation

Filed May 4, 1970, Ser. No. 34,062

Int. Cl. H02j 3/00; H02m 5/28, H02m 7/20

U.S. Cl. 307-12

19 Claims



A circuit for providing a regulated square wave output voltage and a regulated DC output voltage or both. An AC source energizes a switching circuit, having a variable switching rate, which connects a capacitor in voltage clamping relationship to an AC load for both half cycles of the AC voltage thereacross. This switching rate is controlled in accordance with the time accumulation of an electrical quantity, in the present instance the voltage across the AC load. The DC voltage across the capacitor attains a predetermined equilibrium value when the frequency of the AC output voltage is equal to the frequency of the AC source. If the DC capacitor voltage and the AC output voltage derived therefrom deviate from their equilibrium values, as, for example, because of a change in the level of load current, there occur transient changes in the switching rate of the switching circuit which result in changes in the phase displacement between the AC input voltage and the AC output voltage. This phase displacement controls the voltage across an inductor which, in turn, controls the flow of a current which restores the DC capacitor voltage and the amplitude and frequency of the AC output voltage to the desired values while supplying the required power to the AC and DC loads.

3,576,444

FLASHER

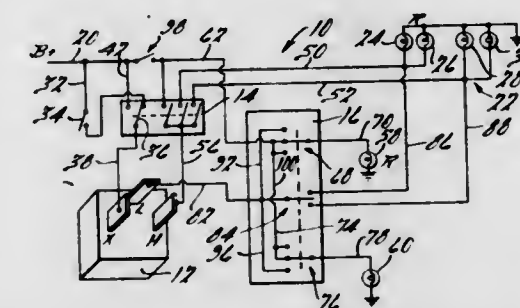
Gordon A. Roberts, Ann Arbor, Mich., assignor to Microdot, Inc., New York, N.Y.

Filed Nov. 29, 1968, Ser. No. 785,811

Int. Cl. H03k 3/00

U.S. Cl. 307-106

30 Claims



A flasher circuit for use in controlling indicator and pilot lamps of a vehicle both in the turn signal and the emergency flash mode of operation wherein the flasher is utilized to control pulses of current to the lamp loads. The flasher may include lamp outage detection in both modes of flasher operation whether the same number of lamps are utilized or different numbers of lamps are utilized for each mode of operation.

3,576,445

TRANSISTOR LOGIC ARRANGEMENTS

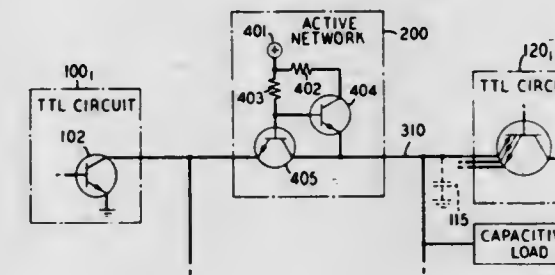
Nissin Habib, Neptune, N.J., assignor to Bell Telephone Laboratories, Incorporated, Murray Hill, Berkeley Heights, N.J.

Filed Apr. 1, 1968, Ser. No. 717,658

Int. Cl. H03k 17/00

U.S. Cl. 307-203

4 Claims



A nonlinear network is combined with conventional transistor-transistor logic (TTL) circuits to provide an overall arrangement characterized by simplicity, low power dissipation, powerful logic capabilities, high-noise margins and the ability to charge capacitive loads in a high speed manner.

3,576,446

PULSE GATE

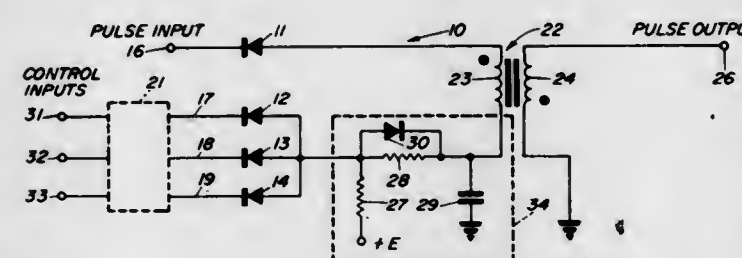
Norman Green, and William E. Krause, Baltimore, Md., assignors to The Bendix Corporation

Filed June 26, 1968, Ser. No. 740,388

Int. Cl. H03k 19/20

U.S. Cl. 307-217

15 Claims



This invention describes a pulse gate which is useful with information present in a digital format the system is com-

posed of an input circuit and a control circuit. The control circuit is capable of generating signals which inhibit the system and thereby prevent an output therefrom during the presence of input signals on the input terminal. The system utilizes a pulse transformer, the secondary of which is used to generate the output pulse. A logic AND gate is used to control the inhibit function. A logic OR gate can be used to receive the input signal. These two logic circuits are connected to opposite sides of the transformer primary. The inhibit circuit is designed such that the control times for the enable and inhibit functions can be discretely chosen. The use of a pulse transformer in the system has several distinct advantages. Firstly, the transformer affords an excellent opportunity to match the impedance between the input and output terminals of the system. Excellent isolation between the input and output terminals is also realized by the use of the transformer. By selecting the inductive coupling of the transformer the polarity of the output can be chosen irrespective of the polarity of the input signal. A multiprimary transformer can be used and thereby increase the versatility of the system. By using such a transformer the system acts as a logic OR gate, each input of which can likewise be a logic OR gate.

3,576,447

DYNAMIC SHIFT REGISTER

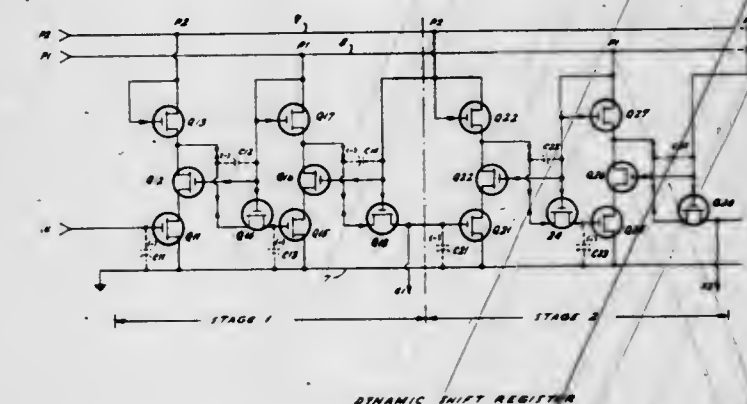
Vernon G. McKenny, Garland, Tex., assignor to Philco-Ford Corporation, Philadelphia, Pa.

Filed Jan. 14, 1969, Ser. No. 791,040

Int. Cl. G11c 19/00

U.S. Cl. 307-221C

10 Claims



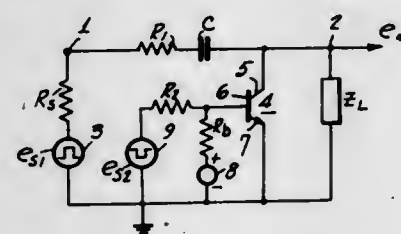
A dynamic shift register comprising a plurality of cascaded stages, each stage including eight insulated gate field effect transistors and four capacitors and each stage being driven by first and second out-of-phase clock pulse sources. When the register is clocked in its ready state, the transistors of each stage allow a first capacitor (C14) to store a charge in response to each pulse from the first clock pulse source (P1) and a second capacitor (C12) to store a charge in response to each pulse from the second clock pulse source (P2). During operation, input information is supplied to the input of the first stage, and simultaneously a pulse from the first clock pulse source (P1) is supplied to each stage. If the input information is a binary ZERO, the transistors of each stage will allow a third capacitor (C13) to receive and store part of the charge on the second capacitor (C12). If the input information is a ONE, the transistors will allow the second capacitor (C12) to discharge, and the transistors also will allow the third capacitor (C13) to discharge if any charge is present on the third capacitor. Thereafter in response to the next pulse from the second pulse (P2), the transistors will allow the charge stored by the first capacitor (C14) to dissipate if a charge has been stored by the third capacitor (C13) (due to a previous ZERO input), whereby the stage will not supply any output voltage (representing a shift of the ZERO to the stage's output). If no charge has been stored by the third capacitor (C13) (due to a previous ONE input), in response to the next pulse from the second source (P2) the transistors will transfer the charge on the first capacitor (C14) to the fourth capacitor of the next stage (C21).

3,576,448 CIRCUIT PRODUCING OUTPUT PULSE OF POLARITY DEPENDENT ON RELATIVE TIMES OF OCCURENCE OF INPUT PULSES

Juan J. Amodel, Levittown, Pa., assignor to RCA Corporation
Continuation of application Ser. No. 539,139, Mar. 31, 1966.
This application Jan. 12, 1970, Ser. No. 1,961
Int. Cl. H03k 5/20

U.S. Cl. 307-232

13 Claims



A capacitor, a normally closed switch connected between one terminal of the capacitor and ground, and a charging source coupled between the other terminal of the capacitor and ground. The polarity of the voltage appearing across the switch is dependent on whether it is opened before or after the charging source is enabled.

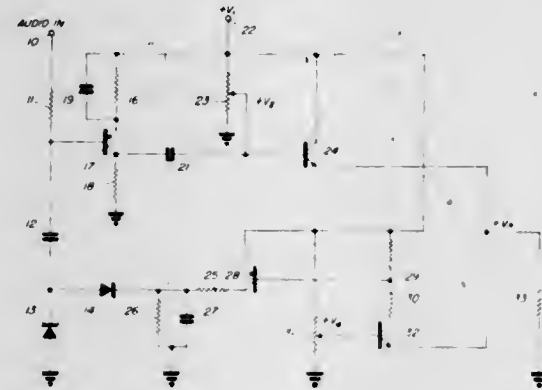
3,576,449 AUDIO LEVEL CLIPPER AND COMPRESSOR

John B. Howell, Sparks, Md., assignor to The Bendix Corporation

Filed July 18, 1968, Ser. No. 745,895
Int. Cl. H03k 5/08

U.S. Cl. 307-237

8 Claims



An audio level clipper and compressor wherein the part of a signal that exceeds the clipping level serves to operate the compressor. An audio signal is applied to the base of a transistor which is forward biased by a fixed, positive DC voltage level. This transistor operates as an emitter follower with its emitter current flowing through a load resistor. A limiter transistor, also having a positive DC voltage level applied to its base, is also connected to supply emitter current to the load resistor. However, the emitter follower emitter voltage normally back-biases the limiter transistor. When the audio voltage is increased the emitter follower emitter voltage drops low enough to allow the limiter transistor to conduct, thus clamping the voltage across the load resistor to the limiter transistor base voltage. Resulting current flow through the limiter transistor is amplified and detected and applied to control a voltage variable resistor which serves to attenuate the audio input.

3,576,450 SYSTEM FOR REMOTE TESTING OF TELEPHONE SUBSCRIBERS LINES

Chauncey R. Davies, Middletown, N.J., assignor to Bell Telephone Laboratories, Incorporated, New York, N.Y.
Division of Ser. No. 459,396, Filed Jan. 22, 1968, Ser. No. 721,908

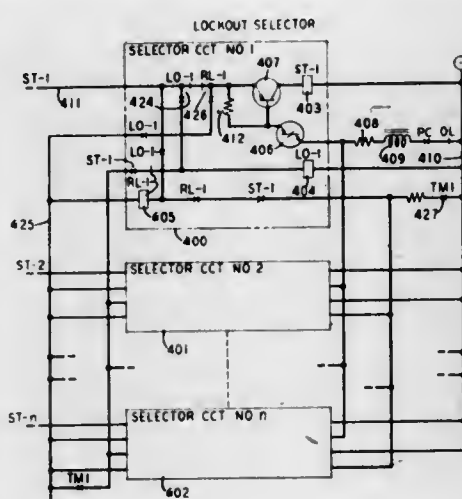
Int. Cl. H03k 17/56

U.S. Cl. 307-243

5 Claims

In a system for remote testing of telephone subscribers lines as disclosed in U.S. Pat. No. 3,410,966, a lockout selector device is provided which selects one control signal at random from a plurality of possible control signals. The lockout selector device locks out all other control signals while the selected control signal is transmitted for a prescribed duration, and then proceeds to select the remaining control

signals at random, one at a time, for similar transmission. Specifically, an array of PNP junction diodes is connected through a common load impedance to a common voltage supply. The other terminals of these diodes are selectively grounded by requests for signals.



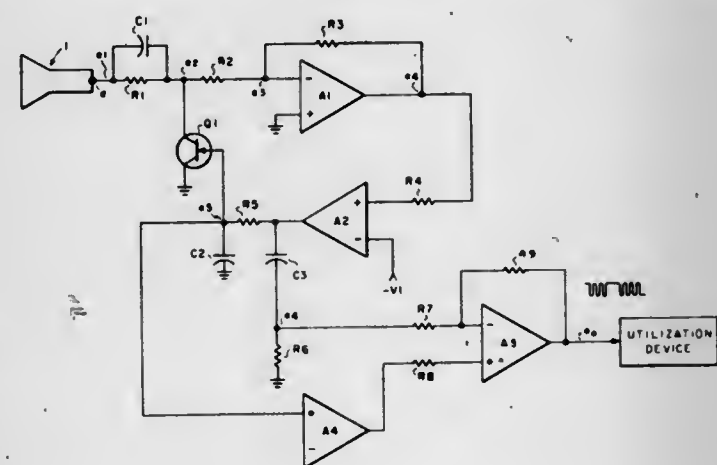
signals at random, one at a time, for similar transmission. Specifically, an array of PNP junction diodes is connected through a common load impedance to a common voltage supply. The other terminals of these diodes are selectively grounded by requests for signals.

3,576,451 VIDEO DETECTION CIRCUIT

Elliott W. Markow, Burlington, Mass., assignor to Newton Electronic Systems, Inc., Waltham, Mass.
Filed June 19, 1969, Ser. No. 834,681
Int. Cl. H03k 5/00

U.S. Cl. 307-268

21 Claims



A detection circuit for a photoelectrical transducer such as a vidicon tube comprising a dual channel amplifier having automatic gain control for relatively low frequencies and a high pass channel for signal transitions and further comprising a summing circuit for combining signals from the gain control circuit and the high pass circuit, and a level detector connected to the summing circuit.

3,576,452 PHOTODIODE PREAMPLIFIER CIRCUIT FOR A CARD READER SYSTEM

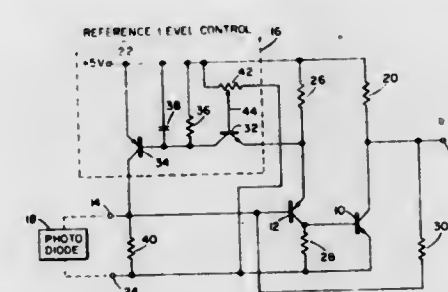
Lawrence R. Smith, Phoenix, Ariz., assignor to Motorola, Inc., Franklin Park, Ill.
Filed May 28, 1968, Ser. No. 732,677
Int. Cl. H03f 17/00, H03f 1/38; H03k 3/00

U.S. Cl. 307-311

7 Claims

A photodiode preamplifier circuit including input terminals to which a photodiode may be connected. The photodiode senses the presence of a mark or a hole on a sense card and in turn provides a change in voltage at a con-

trol transistor to which the photodiode is connected. An output transistor is connected to the control transistor and is conductively controlled by the signal applied to the control transistor to in turn provide an output signal at one or the other of two binary levels. A reference level control means is



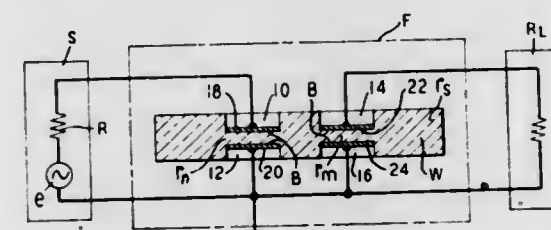
connected between the control transistor and the input terminals of the amplifier and responds to current variations in the control transistor to produce a compensating current to the photodiode. This compensating current maintains a constant DC voltage level with reference to a constant threshold level at the output transistor.

3,576,453 MONOLITHIC ELECTRIC WAVE FILTERS

Warren P. Mason, West Orange, N.J., assignor to Bell Telephone Laboratories, Incorporated, Murray Hill, Berkeley Heights, N.J.
Filed May 2, 1969, Ser. No. 821,273
Int. Cl. H01v 7/00

U.S. Cl. 310-8.2

8 Claims



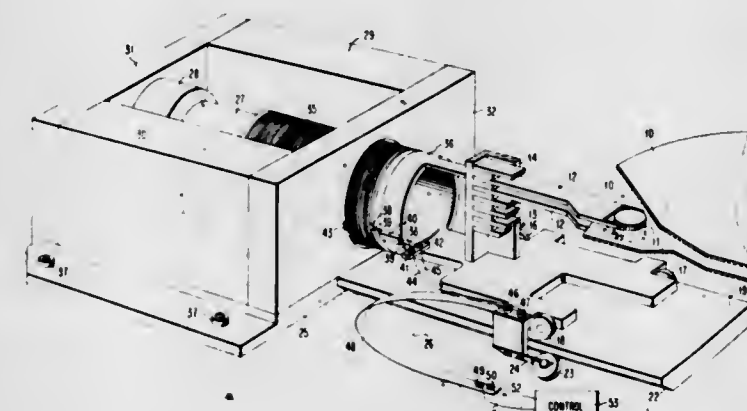
A crystal wafer supports two or more pairs of opposing electrodes to form a monolithic crystal filter. The wafer material has a high piezoelectric coupling coefficient. Inharmonic oscillations are suppressed by plating the electrodes on the surfaces of recesses in the faces of the wafer.

3,576,454 DATA STORAGE ACCESSING MECHANISM WITH MOVING COIL MOTOR

Laurence R. Beach, Jr., Boulder, Colo., and Robert J. Black, Los Gatos, Calif., assignors to International Business Machines Corporation, Armonk, N.Y.
Filed Mar. 28, 1968, Ser. No. 716,968
Int. Cl. H02k 1/20; G11b 21/08

U.S. Cl. 310-16

3 Claims



Apparatus for moving transducers into or out of engagement with a recording medium and for adjusting the position

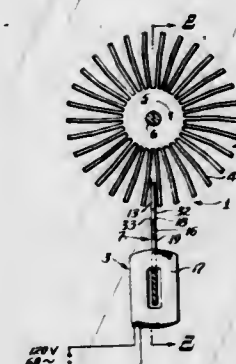
of the transducer laterally with respect to tracks to thereby selectively access those tracks. The apparatus includes a DC linear electric motor employing external magnets. The specific arrangement comprises a plurality of permanent magnets arranged on either side of, and parallel to, a magnetically permeable center pole piece. The rear of the magnets and the center pole piece are connected by a magnetically permeable plate. A front magnetically permeable plate interconnects the magnets at the other end and forms a gap surrounding the center pole piece. A hollow coil is mounted on a carriage and is slidably inserted through the gap and over the center pole piece. The transducers are then mounted on the carriage. The arrangement focuses the magnetic flux across the gap whereby electrical energization of the coil causes the coil to be moved in one direction or the other along the center pole piece, thereby moving the carriage and the transducers longitudinally, and hence, laterally with respect to tracks on the recording medium.

3,576,455 SYNCHRONOUS RELUCTANCE MOTOR

Michael J. Ingenito, Bronx, N.Y., assignor to General Time Corporation, Stamford, Conn.
Filed Nov. 5, 1969, Ser. No. 874,280
Int. Cl. H02k 19/06

U.S. Cl. 310-163

22 Claims



A synchronous reluctance motor particularly useful as a clock drive motor. The motor includes a stator having an airgap and a rotor having spaced teeth of magnetic material which travel in a circular path and pass through the airgap of the stator. A magnetic flux is established periodically in the stator airgap in timed relation to an approaching tooth. The timing is such that flux buildup in the airgap occurs when an approaching tooth is closer to the airgap than a receding tooth, and the flux is approximately zero when the tooth is at the center of the airgap. Hence, there is no retarding force on a tooth as it leaves the airgap. The pulsating flux is established, in one embodiment, by a power source which supplies periodic current pulses to the stator winding. In another embodiment, the power source has a sinusoidal wave form, and a magnetic shunt paralleling the stator airgap converts the sinusoid into a series of current pulses for energizing the stator winding.

3,576,456 TRANSIENT LEAKAGE FLUX BARRIER FOR DC DYNAMOELECTRIC MACHINES

Frank T. De Wolf, Erie, Pa., assignor to General Electric Company

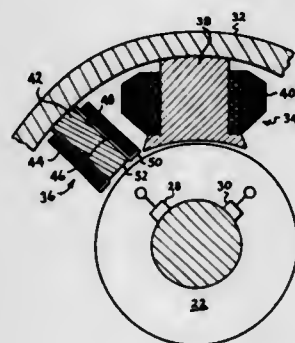
Filed Jan. 21, 1970, Ser. No. 4,607
Int. Cl. H02k 23/24

U.S. Cl. 310-186

1 Claim

The performance and commutating ability of a dynamoelectric machine using commutating poles are improved during transient loading conditions and during pulsations in the power supply of the machine through the use of transient flux barriers which are mounted between the commutating pole piece and the commutating winding of the machine. Because the transient flux barriers are manufactured out of metallic material having a high level of conductance, transient leakage flux from the commutating pole induces eddy currents in the transient flux barrier. As a result, these eddy currents are prevented from being

generated in the frame of the machine itself resulting in improved commutation while the current of the machine is unidulating. The transient flux barriers have an extension at the

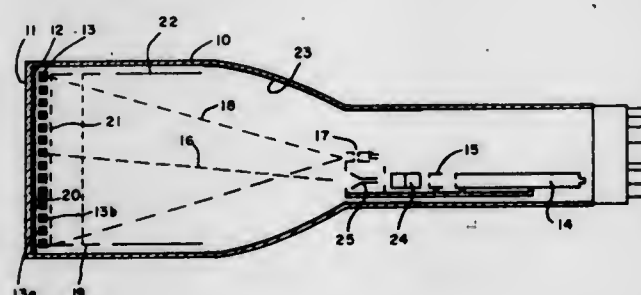


end thereof adjacent the armature so as to have a substantially L-shaped cross section, and both the barriers and the commutating coil are positioned as close to the armature as is reasonably possible.

3,576,457

HIGH-RESOLUTION DIRECT-VIEW STORAGE TUBE
Joseph Burns, Pequannock, N.J., assignor to Fairchild Camera and Instrument Corporation
Filed Aug. 23, 1968, Ser. No. 754,840
Int. Cl. H01j 29/18, H01j 29/41, H01j 29/50, H01j 31/48
U.S. Cl. 313-71

4 Claims



A high-resolution direct-view storage tube comprises an envelope having a viewing face, a phosphorescent screen on the inner surface of the envelope face, a wire mesh signal-storage electrode adjacent the phosphorescent screen, an electron beam write-gun disposed to scan the storage electrode, a wide-angle flood-gun disposed to flood the storage electrode with relatively low-velocity electrons, and a collector electrode disposed between the storage electrode and the two guns. The tube further comprises a conductive coating for the phosphorescent screen effective to develop an electric field between such screen and the storage electrode for attracting electrons to the screen and a wire mesh control electrode adjacent the storage electrode for developing an electric field therebetween having a potential gradient approximately equal to that of the electric field on the opposite side of the storage electrode, whereby divergence of the electron streams passing through the storage electrode can be controlled by adjustment of the potential of the control electrode, preferably to minimize such divergence.

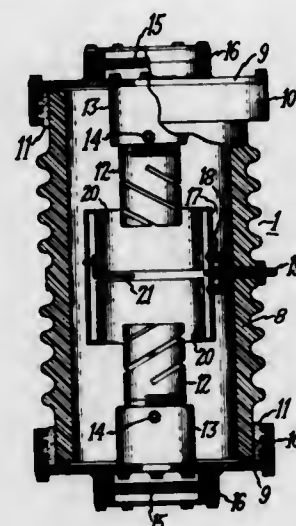
3,576,458

HEAVY DUTY OVERVOLTAGE POWER GAP
Sidney R. Smith, Jr., Myrtle Beach, S.C., assignor to General Electric Company
Division of Ser. No. 670,297, Sept. 25, 1967, Pat. No. 3,497,764.
Filed Sept. 29, 1969, Ser. No. 871,033
Int. Cl. H01j 61/28; H02h 3/22
U.S. Cl. 313-231

6 Claims

A main power gap has a combined heat shield and arc controlling trigger electrode, there being a resistive voltage grad-

ing network connected between the main electrodes and the trigger electrode, with an accurately calibrated voltage-

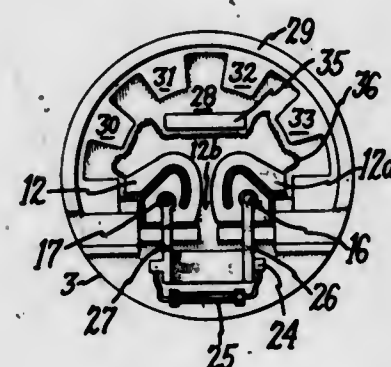


responsive pilot gap connected between one main electrode and the trigger electrode.

3,576,459

CURRENT LIMITING SPARK GAP WITH MEANS FOR REGULATING GAP VOLTAGE
Eugene C. Sakshaug, Lanesborough; James S. Kresge, and Stanley A. Miske, Jr., Pittsfield, Mass., assignors to General Electric Company
Filed Feb. 24, 1969, Ser. No. 801,552
Int. Cl. H01j 17/00
U.S. Cl. 313-325

10 Claims



A lightning arrester having a current limiting spark gap assembly with means therein for regulating the movement of arcs established within the assembly so that the arcs are prevented from building a high voltage when they are discharging a current in excess of a predetermined value. The regulating means are also effective to allow low current arcs to rapidly and consistently build high voltages.

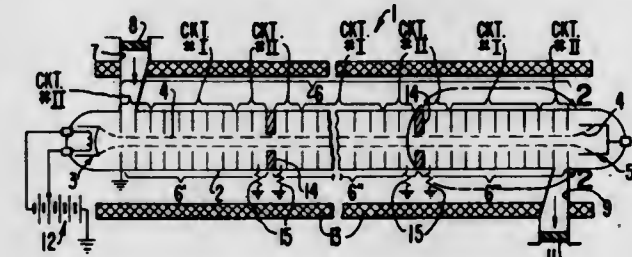
3,576,460

IMPEDANCE MATCH FOR PERIODIC MICROWAVE CIRCUITS AND TUBES USING SAME
Ward A. Harman, Los Altos Hills, Calif., assignor to Varian Associates, Palo Alto, Calif.
Filed Aug. 8, 1968, Ser. No. 751,258
Int. Cl. H01j 25/34
U.S. Cl. 315-3.5

5 Claims

A traveling wave tube amplifier is disclosed. The amplifier includes an electron gun for forming and projecting a stream of electrons over an elongated beam path to a beam collector electrode. A coupled cavity slow wave circuit is arranged along the electron beam path for electromagnetic interaction with the beam to produce an amplified output signal at the downstream end of the circuit. The slow wave circuit is made up of a number of severed slow wave circuit portions. Each of the severed circuit portions includes a plurality of substantially identical coupled cavity resonators forming a main

periodic slow wave circuit portion having a passband with at least one bandedge frequency of interest which is capable of producing bandedge oscillations by interaction with the electron stream. Matching circuit portions are provided at opposite ends of the slow wave circuit portions for impedance matching the main periodic circuit section to the load and input transmission lines to prevent trapping of wave energy on the main circuit portion which could otherwise lead to

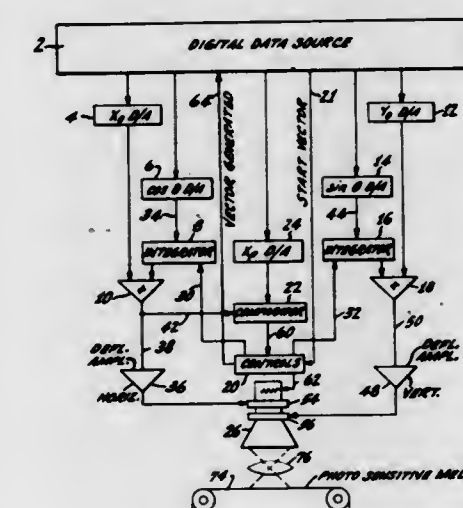


bandedge oscillation. The matching circuit portions comprise at least two periods of the periodic slow wave circuit having essentially the same general physical configuration as that of the main circuit portion. The matching section has a cutoff frequency of interest substantially outside of the passband of the main circuit portion and is dimensioned to have an electrical length at the bandedge frequency of interest of the main periodic section to provide essentially a quarter wave transformer section.

3,576,461

CONSTANT VELOCITY VECTOR GENERATOR
Salvatore A. Raciti, Pennington, N.J., assignor to RCA Corporation
Filed Mar. 19, 1969, Ser. No. 808,523
Int. Cl. H01j 29/70, 29/52
U.S. Cl. 315-18

14 Claims



Each vector which is generated, regardless of its length, has orthogonal velocity components which are proportional to $\cos \theta$ and $\sin \theta$, respectively. Each vector therefore has a velocity proportional to $(\cos^2 \theta + \sin^2 \theta)^{1/2}$ and since this is equal to 1, each vector has a velocity which is constant. The present system is particularly useful in the printing industry where the line (of uniform width and brightness) described by the vector may be a part of a character drawn on the screen of a cathode ray tube employed to expose a photosensitive medium adjacent to the screen.

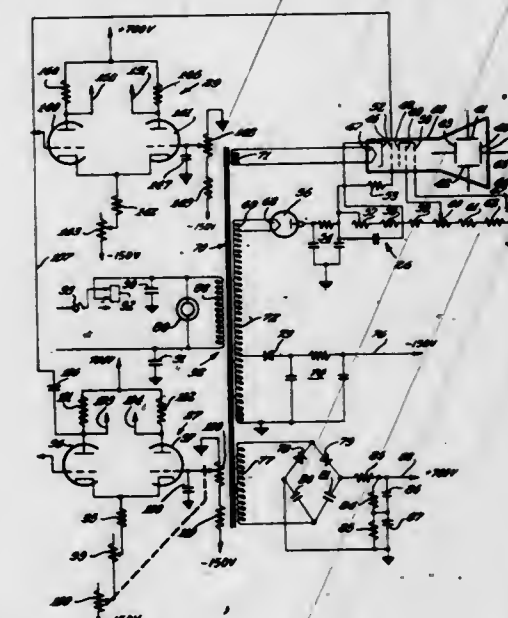
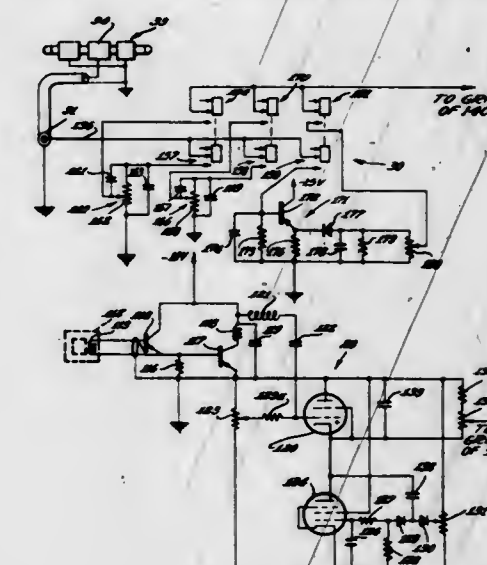
3,576,462

IGNITION OSCILLOSCOPE
Albert M. Wanninger, Prospect Heights, Ill., assignor to Peerless Instrument Co., Chicago, Ill.
Filed Apr. 11, 1968, Ser. No. 720,583
Int. Cl. H01j 29/72; G01r 13/26
U.S. Cl. 315-22

17 Claims

This invention is directed to ignition oscilloscope testing devices. The input circuit of the oscilloscope includes a

charging capacitor which is arranged in the circuit to have a short RC time constant during the charging of the capacitor and a long RC time constant during the discharging of the capacitor. The discharging of the capacitor provides a pulse of increased time duration which is displayed on the face of

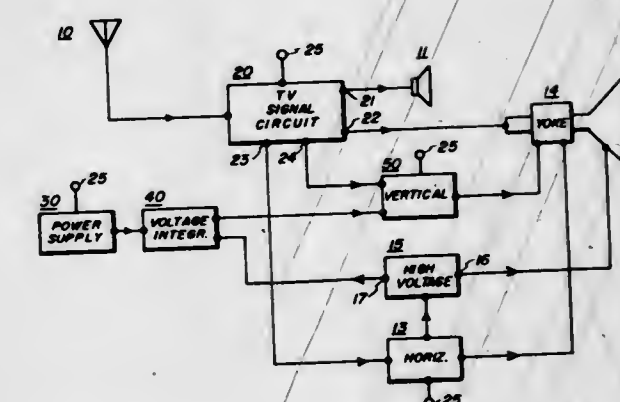


the oscilloscope. The horizontal sweep circuit of the oscilloscope includes a horizontal position control and a bias control which are ganged together for movement from a common knob or shaft thereby providing means to maintain a constant focus of the trace on the face of the oscilloscope.

3,576,463

LINE STABILIZED VERTICAL DEFLECTION SYSTEM
Padmanabh Shukla, Chicago, Ill., assignor to Admiral Corporation, Chicago, Ill.
Filed Feb. 3, 1969, Ser. No. 795,963
Int. Cl. H01j 29/70
U.S. Cl. 315-26

9 Claims



The television receiver vertical deflection output tube is supplied with DC operating potentials undesirably fluctuating

in accordance with fluctuations in the AC line voltage, causing objectionable raster size changes. A separate rectifier circuit produces a relatively large negative DC voltage in which the fluctuations are oppositely poled to those in the DC operating potentials. The negative DC voltage is combined with a substantially constant positive DC voltage of similar magnitude, obtained from the boost source, for producing a compensatory signal consisting essentially only of the oppositely poled fluctuations. The compensatory signal is coupled to the input of the vertical output tube and maintains the translation characteristic thereof substantially constant.

3,576,464

CIRCUIT ARRANGEMENT FOR GENERATING A SAWTOOTH CURRENT

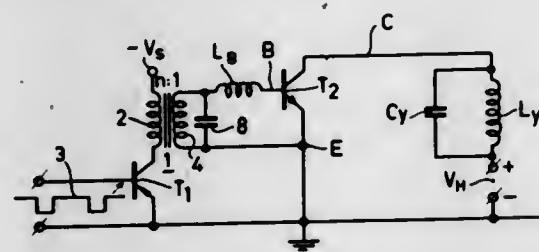
Wilhelmus Theodorus Hendrikus Hetterscheid, Nijmegen, Netherlands, assignor to U. S. Philips Corporation, New York, N.Y.

Filed Mar. 7, 1969, Ser. No. 805,331
Claims priority, application Netherlands, Mar. 30, 1968, 6804513

Int. Cl. H01J 29/76

U.S. Cl. 315-27

7 Claims



A horizontal deflection circuit in which the driver transistor is coupled to the output transistor via a transformer. In order to prevent oscillations in the output stage, a capacitor is shunted across the transformer secondary winding. The capacitor is chosen so that its impedance, at the line repetition frequency, is substantially smaller than the impedance of the secondary inductance, e.g., 3 to 5 times smaller.

3,576,465

IONIZATION GAUGE CONTROL WITH EMISSION RESPONSIVE CONTROL OF THERMIONIC FILAMENT HEATING

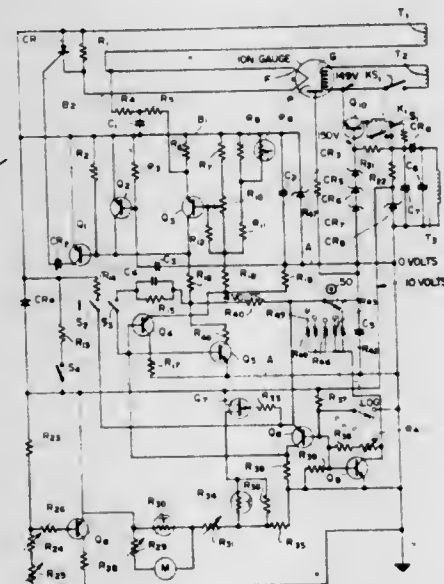
Philip C. Harvey, Bedford, Mass., assignor to Norton Company, Newton Highlands, Mass.

Filed Apr. 1, 1968, Ser. No. 717,814

Int. Cl. G01n 27/62; H01j 7/16

U.S. Cl. 315-102

10 Claims



Ionization gauge control for thermionic emission vacuum devices such as ionization gauges used in measurement of gas

density and the like. The control comprises an overpressure control operative during outgassing of the device and at atmospheric pressure, based on thermionic emission in the vacuum device.

3,576,466

HIGH INTENSITY MERCURY-LINE SOURCE

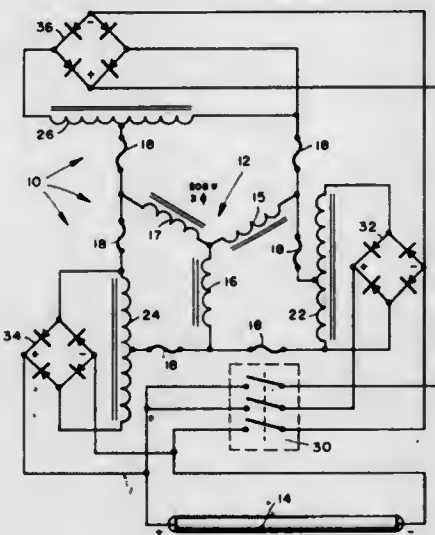
William C. Griffin, Ridgecrest, Calif.

Filed Nov. 4, 1968, Ser. No. 773,170

Int. Cl. H05b 41/38; H05i 41/234

U.S. Cl. 315-137

2 Claims



The invention utilizes a tubular mercury vapor lamp for high intensity backlighting for use with the ballistic-synchro camera technique. In order to effectively eliminate the flicker inherent in such lamps because of the alternating current supply, three-phase power is used with three ballasts and three full-wave bridge rectifiers, with the outputs of the rectifiers in parallel. Although with continual application of this power the lamp is overloaded, satisfactory control is achieved by operating the lamp on single phase for standby and switching on the other two phases just prior to event time and switching back to single phase when the object to be photographed has cleared the area.

3,576,467

HIGH VOLTAGE SPARK GENERATOR FROM LOW VOLTAGE SUPPLY

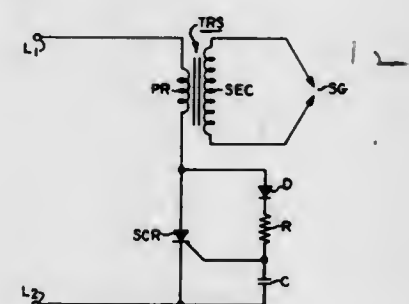
Sharad K. Gupte, Milwaukee, Wis., assignor to Penn Controls, Inc., Oak Brook, Ill.

Filed Aug. 31, 1967, Ser. No. 664,855

Int. Cl. H05b 41/23; H03k 17/72

U.S. Cl. 315-206

2 Claims



The primary winding of a high turns ratio spark transformer is connected in the anode circuit of a silicon controlled rectifier for energization from a 24 volt, 60 cycle alternating power source. A biasing resistor and blocking diode are connected in series between the anode and gate of the rectifier, while a firing capacitor is connected between its gate and cathode. Charging the capacitor fires the rectifier, causing a surge of current in the primary winding of the transformer, which surge induces a voltage in the secondary winding of insufficient magnitude to arc across the spark gap. However, as the flux field collapses, a spike of from 150 to

200 volts is induced in the primary winding. Due to the high ratio of transformation (approximately 1 to 90), this spike induces 13,500 to 18,000 volts in the secondary winding, which voltage arcs across the spark gap. The voltage spike induced in the primary drives the anode of the rectifier negative, causing it to cease conducting. This firing sequence is repeated to produce at the spark gap 7 output pulses of 180 microseconds peak duration each for each positive half cycle of the applied power.

3,576,468

STROBOSCOPE CONTROL SYSTEM

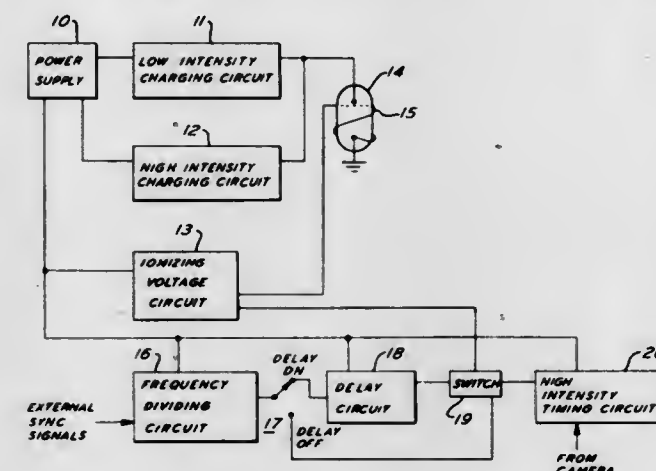
Gerald E. Walker, Kimberton, Pa., assignor to Automation Industries, Inc.

Filed Jan. 4, 1967, Ser. No. 607,178

Int. Cl. H05b 37/02

U.S. Cl. 315-209

5 Claims



A system for triggering a strobe lamp at a low light intensity in response to signals which are automatically derived by frequency-division from much higher frequency synchronizing signals. It also includes a circuit which enables the production of a single, very high intensity strobe flash by one of the synchronizing signals in response to activation of associated photographic apparatus.

3,576,469

APPARATUS TO SENSE STEEP WAVE FRONT SIGNALS AND REACT TO PROTECT CIRCUITRY FROM DISCHARGE DAMAGE

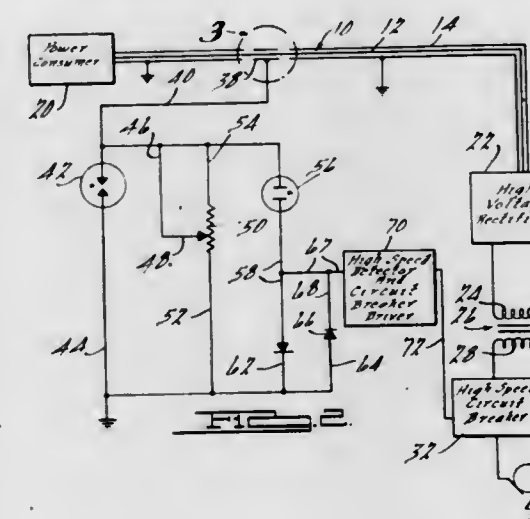
David H. McNitt, Royal Oak, and Allen H. Turner, Ann Arbor, Mich., assignors to Ford Motor Company, Dearborn, Mich.

Filed Feb. 16, 1970, Ser. No. 11,629

Int. Cl. H02h 7/26; H02h 3/26

U.S. Cl. 317-18

10 Claims



Apparatus for protecting high-voltage electrical equipment from damage due to unexpected and undesired discharges. The equipment includes power-consuming means supplied high-voltage electrical energy via a transmission cable having a central core and a core shield surrounding and spaced from the core. The apparatus comprises a length of core shield iso-

lated and electrically insulated from the remainder of the core shield. The isolated length of core shield is connected electrically by circuit means to a high-speed circuit breaker located in the high-voltage power supply circuit. These circuit means include an electrical resistance and a high-speed signal detector and circuit breaker driver. Upon an unexpected discharge occurring in the electrical equipment, a voltage signal occurs across the resistance that is sensed by the high-speed detector and circuit breaker driver that then functions to actuate the circuit breaker. Actuation of the circuit breaker causes an interruption in the supply of high-voltage energy to the equipment.

3,576,470

DISCHARGING GAP DEVICE FOR A MAGNETIC BLOW-OUT ARRESTER

Fumio Tomura, and Yasukatsu Okino, Shizuoka-ken, Japan, assignors to Kabushiki Kaisha Meidensha, Tokyo, Japan

Filed Feb. 12, 1970, Ser. No. 10,924

Claims priority, application Japan, Feb. 17, 1969, 44/11685

Int. Cl. H02h 9/06

U.S. Cl. 317-61

6 Claims



A discharging gap device for a magnetic blowout arrester comprising a partition plate separating an arc extinguishing chamber into upper and lower sections, a coil-shaped guide electrode extending through said partition plate so that the end portion thereof is led to the underside to portions located in said sections respectively, discharge electrodes juxtaposed to the upper portion and the lower portion of said guide electrode, and a cover closing the chamber.

3,576,471

MANUALLY OPERABLE PIEZOELECTRIC GAS IGNITER

Herbert Schumacher, Esslingen, Germany, assignor to Junkers & Co. G.m.b.H., Wernau (Neckar), Germany

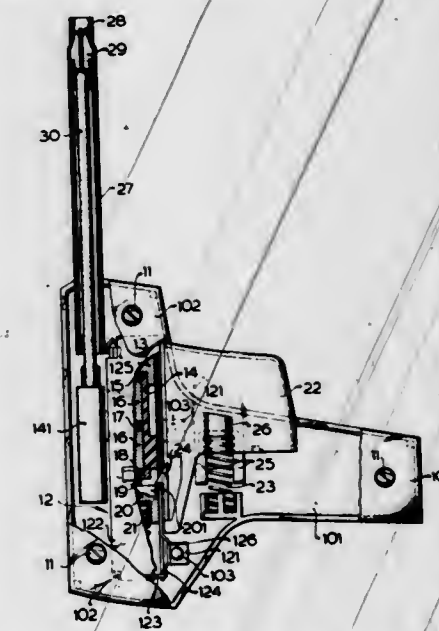
Filed Feb. 2, 1970, Ser. No. 7,773

Claims priority, application Germany, Feb. 1, 1969, P 19 05 000.1

Int. Cl. F23g 3/01

U.S. Cl. 317-81

10 Claims



A pistol-shaped manual igniter having a striker cocked by a manual trigger which is displaced by a cam to release the

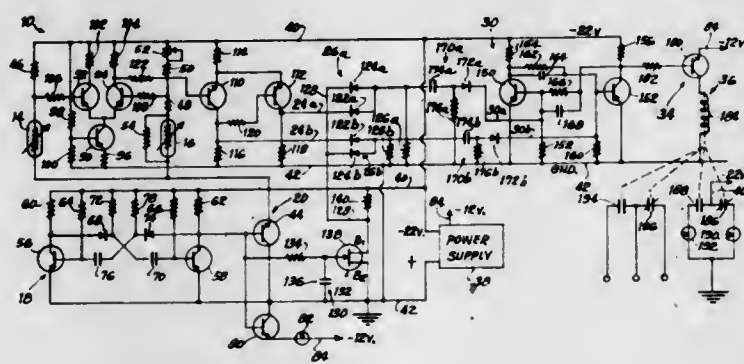
cocked striker so that the same strikes a piezoelectric element from which electric energy is conducted to an igniting electrode at the end of a barrel.

3,576,472

DEVICE FOR SENSING FLOWABLE MATERIAL
John F. Marshall, III, Hermitage, Tenn., assignor to Aladdin Industries, Incorporated, Chicago, Ill.
Filed Apr. 18, 1968, Ser. No. 722,304
Int. Cl. H01h 47/26

U.S. Cl. 317-132

15 Claims



A device for sensing the presence or absence of a flowable material in response to the thermal conductivity thereof, comprising a probe including first and second thermistors adapted to be surrounded by flowable material, energizing means for energizing said first thermistor with sufficient power to cause substantial heating thereof, said energizing means including means for supplying said second thermistor with a small amount of power insufficient to cause substantial heating thereof, said second thermistor affording a reference resistance responsive to the ambient temperature of the flowable material, a cycle timer connected to said energizing means for alternately energizing and deenergizing said first thermistor, said first thermistor being energized for a heating cycle and then deenergized for a cooling cycle, a comparator comprising a differential amplifier for comparing the voltages across said first and second thermistors, a trigger device connected to said differential amplifier and having first and second outputs which are activated alternately in accordance with whether the resistance of said first thermistor is above or below a predetermined control point, first and second gates connected to said first and second outputs, a delay timer connected to said cycle timer and including a pulse generator for generating a momentary pulse after a predetermined delay from the beginning of said heating cycle, means for supplying said momentary pulse to said gates to actuate said gates, a memory device having first and second inputs connected to said gates, said memory device being operable alternately to first and second states in response to pulses from said gates, and means including an output relay connected to said memory device to indicate the state of said memory device.

3,576,473

SOLENOID CONSTRUCTION MEANS OR THE LIKE
Francis S. Genbauffe, Irwin, Pa., and Raymond J. Fox, Glendale, Calif., assignors to Robertshaw Controls Company, Richmond, Va.

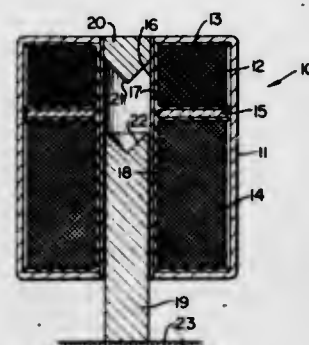
Filed July 11, 1968, Ser. No. 744,039
Int. Cl. H01h 47/00

U.S. Cl. 317-155.5

20 Claims

A solenoid construction wherein a pull coil means is only adapted to move a plunger means from its deenergized position to a position intermediate its deenergized position and its fully actuated position when the pull coil means is energized whereby the plunger means when disposed in its intermediate position is adapted to be influenced by a hold coil means so that when the hold coil means is also energized the

same will move the plunger means from its intermediate position to its fully actuated position and hold the plunger in its



fully actuated position regardless of whether or not the pull coil means remains energized.

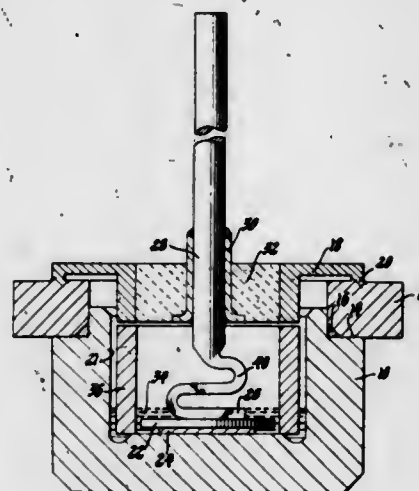
3,576,474

PASSIVATED POWER RECTIFIER
Frank X. Huber, Samuel E. Miller, Kokomo; James E. Reynolds, Sharpville, and Albert D. Rittmann, Kokomo, Ind., assignors to General Motors Corporation, Detroit, Mich.

Filed Feb. 23, 1968, Ser. No. 707,831
Int. Cl. H01l 1/10

U.S. Cl. 317-234

1 Claim



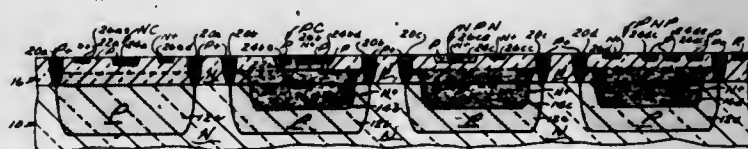
An improved hermetically sealed semiconductor device and the method of making that device. The improvement inhibits deterioration of the electrical characteristics of hermetically sealed semiconductor devices having a getter body included within the sealed housing for environmental control therein, along with the semiconductor body. A small quantity of insulating liquid is added to the housing sufficient to cover the surface of the semiconductive body but insufficient to cover an effective area of the getter body.

3,576,475

FIELD EFFECT TRANSISTORS FOR INTEGRATED CIRCUITS AND METHODS OF MANUFACTURE
John William Kronlage, Richardson, Tex., assignor to Texas Instruments, Incorporated, Dallas, Tex.
Filed Aug. 29, 1968, Ser. No. 756,190
Int. Cl. H01l 1/14

U.S. Cl. 317-235

5 Claims



P-channel field-effect transistors are described which include a silicon substrate with an N-type epitaxial layer on one

face thereof and an N-type subepitaxial diffused region which extends in one direction into a P-type region in the face of the substrate and in the opposite direction into the epitaxial layer to form a junction with a P-type diffused channel region extending partially into the epitaxial layer. These P-channel transistors may constitute a portion of an integrated circuit including a complementary N-channel field effect transistor and/or vertical and surface bipolar NPN and PNP transistors and resistors. Processes are disclosed for forming such transistors wherein a P-type diffusion in an epitaxial layer and an N-type diffused subepitaxial region are further diffused to form a junction therebetween.

3,576,476

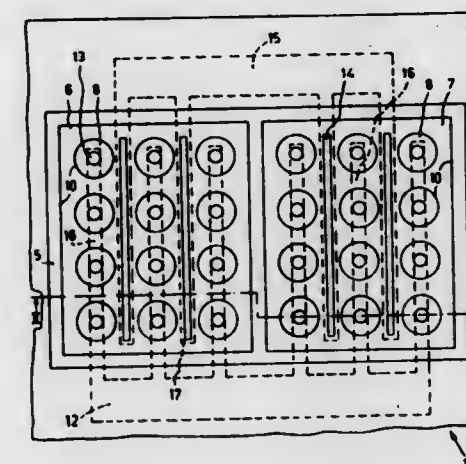
MESH EMITTER TRANSISTOR WITH SUBDIVIDED EMITTER REGIONS
George Kerr, Emmasingel, Eindhoven, Netherlands, assignor to U.S. Philips Corp.

Filed Mar. 13, 1969, Ser. No. 806,893
Claims priority, application Netherlands, Sept. 30, 1968, 6813997

U.S. Cl. 317-235

Int. Cl. H01l 1/106

4 Claims



A mesh emitter transistor for high power, high frequency uses is described. Improved performance is obtained by subdividing the apertured emitter region into at least two portions separated by a base region.

3,576,477

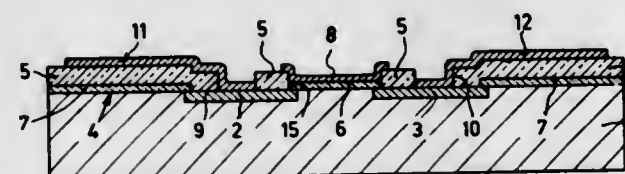
INSULATED GATE FET WITH SELECTIVELY DOPED THICK AND THIN INSULATORS
Else Kooi, Emmasingel, Eindhoven, Netherlands, assignor to U.S. Philips Corporation, New York, N.Y.

Filed May 21, 1969, Ser. No. 828,799
Claims priority, application Netherlands, May 23, 1968, 6807317

U.S. Cl. 317-235

Int. Cl. H01l 1/14

4 Claims



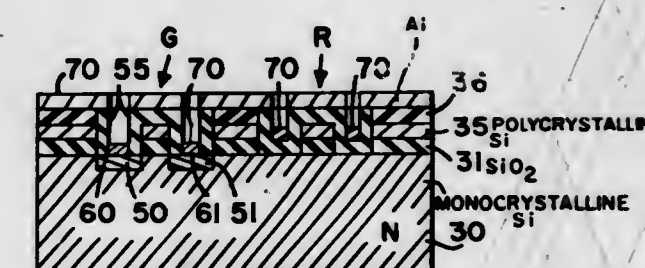
An insulated gate field effect transistor is described having a thin insulator under the gate and a thick insulator under source and drain connections. The insulator over the source and drain is impurity doped, which impurity is diffused into the semiconductor body to form the source and drain. However, the insulator under the gate is a mask against diffusion of the said impurity.

3,576,478

IGFET COMPRISING N-TYPE SILICON SUBSTRATE, SILICON OXIDE GATE INSULATOR AND P-TYPE POLYCRYSTALLINE SILICON GATE ELECTRODE
Boyd G. Watkins, San Francisco, and Michael J. Selsor, Cupertino, Calif., assignors to Philco-Ford Corporation
Continuation of application Ser. No. 525,163, Nov. 17, 1966, now abandoned, which is a continuation-in-part of application Ser. No. 582,053, Sept. 26, 1966, now abandoned. This application July 22, 1968, Ser. No. 861,524
Int. Cl. H01l 1/10, 1/14

U.S. Cl. 317-235

7 Claims



Insulated Gate Field Effect Transistor employing a polycrystalline semiconductor surface layer, one strip of which serves as the gate electrode of the IGFET, and another strip of which may serve as a resistor. The semiconductor surface layer is employed as a mask for the diffusion of the source and drain regions, thereby insuring automatic alignment between the gate electrode and the source and drain regions.

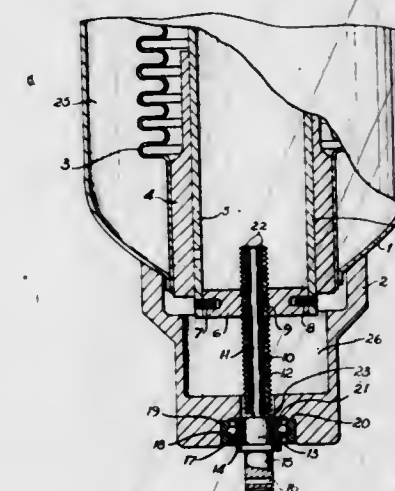
3,576,479

TEMPERATURE COMPENSATED LEAD SCREW
Joseph E. Oeschger, Palo Alto, Calif., assignor to International Telephone and Telegraph Corporation, New York, N.Y.

Filed Feb. 9, 1970, Ser. No. 9,663
Int. Cl. H01g 5/14, H01g 5/34

U.S. Cl. 317-245

10 Claims



A temperature compensated lead screw for use in a device, such as a vacuum capacitor, in which an electrical parameter is controlled by position of a shaft operating through a vacuum-sealing flexible metal bellows into an evacuated envelope. The shaft position is, in turn, the result of the lead screw acting against a threaded member. The lead screw assembly is composed of an externally threaded sleeve slip-fit onto a mandrel and welded, or other wise tightly bonded, at a single discrete location along the common mandrel/sleeve axial length. Normally the sleeve has a relatively high predetermined thermal coefficient of expansion and the mandrel a low coefficient, if the device controlled is a vacuum capacitor.

The heating effect, and therefore the resulting capacitance change through expansion effects in a vacuum capacitor handling RF power, is a complex function of factors, including capacitance value. The desired counteractive shaft expansion

is therefore a function of capacitance (lead screw) setting. The structure described provides a counteraction for internal heating expansion effects in devices of the character described. If the bond between the sleeve and mandrel is not at the extreme end of the lead screw assembly, then for example, positive overall lead screw expansion is obtained corresponding to thread engagement on one side of the bond, and negative for a thread engagement on the opposite side of the bond.

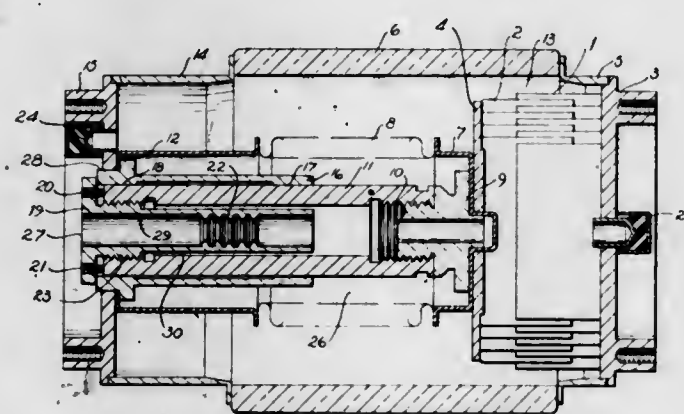
3,576,480 TEMPERATURE-COMPENSATING APPARATUS FOR VARIABLE ELECTRICAL PARAMETER DEVICE

Paul M. Barton, San Jose, Calif., assignor to International Telephone and Telegraph Corporation, New York, N.Y.
Filed Feb. 9, 1970, Ser. No. 9,664

Int. Cl. H01g 5/14, H01g 5/34

U.S. Cl. 317-245

10 Claims



A temperature compensating arrangement in a variable electrical parameter device such as a variable vacuum capacitor which is controlled by a lead screw engaged to an axially translating shaft member. The engagement of the lead screw into the shaft member is through a sleeve insert member. The sleeve insert is threaded to connect to threads inside the control end of the shaft and the lead screw engages interior threads over a relatively small axial length substantially at the innermost end of the insert. Vacuum capacitors are typical of such variable electrical parameter devices. As illustrated, thermal expansion of the shaft is counteracted by expansion of the insert member. The insert member is normally constructed of material having a higher coefficient of thermal expansion than the shaft and the other structural members tending to increase the capacitor plate mesh with their expansion.

3,576,481 MINIATURE METALLIZED CAPACITOR AND METHOD AND APPARATUS FOR MAKING IT

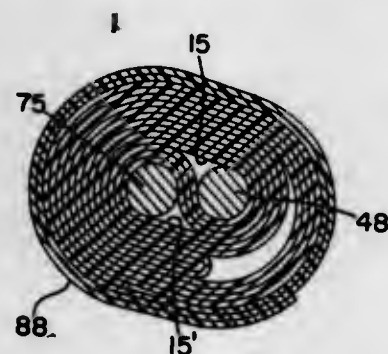
Charles C. Rayburn, Falls Church, Va., assignor to Illinois Tool Works, Inc., Chicago, Ill.

Filed Jan. 20, 1970, Ser. No. 4,386

Int. Cl. H01g 3/21

U.S. Cl. 317-260

9 Claims



Miniature capacitor is formed from a single strip of dielectric material metallized on each of its sides. The strip is wound generally from the middle of the completed capacitor using its lead wires as mandrels. The winding time is con-

siderably shortened and a plurality of insulating thicknesses of strip material are quickly placed between the two lead wires by initially locating a central portion of the strip between the first lead wire and a retractable winding pin which orbits so as to carry the strip around the first lead wire in the form of a loop which is wound into the capacitor after the second lead wire has been inserted. The winding pin is mounted adjacent an elongated slot. The first lead wire may be loaded in an axial direction at one end of the slot and carried to the other end of the slot by the looped strip as the strip is carried around the lead wire by the orbiting of the winding pin and slot. The second lead wire may then be fed into the slot along the same axis as the first lead wire was fed, and the winding pin retracted, without any interruption in the winding. The leads are retained in the capacitor by heat shrinking the dielectric strip.

3,576,482 RELAY CONTROL SYSTEM FOR PLURALITY OF BIDIRECTIONAL MOTORS

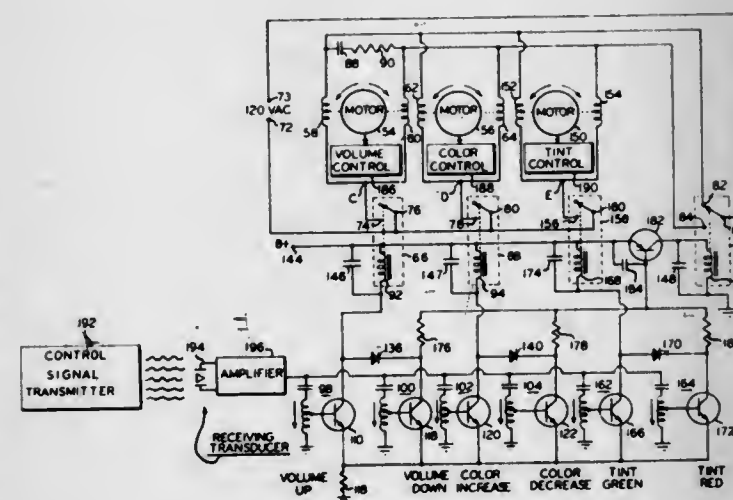
Dong Woo Rhee, Williamsville, N.Y., assignor to Sylvania Electric Products, Inc.

Filed Aug. 27, 1969, Ser. No. 853,301

Int. Cl. H04q 7/02; H02p 1/58

U.S. Cl. 318-16

12 Claims



A control system for a plurality of bidirectional motors comprising a like plurality of SPST relays respectively connected between the common junctions of the motor windings and a source of AC voltage. The windings of each of the motors are also connected in parallel across a phase-shifting capacitor and across the contact terminals of a SPDT relay, the common terminal of which is connected to the AC voltage source. Rotation of a selected motor in one direction is provided by energizing the SPST relay connected to the common junction of the windings of that motor. Rotation of that motor in the opposite direction is effected by energizing both the SPST relay connected to its common winding junction and the SPDT relay.

3,576,483 SPEED CONTROL CIRCUIT FOR SPLIT PHASE MOTORS

Charles C. Gambill, Kokomo, Ind., assignor to General Motors Corporation, Detroit, Mich.

Filed Nov. 25, 1969, Ser. No. 879,765

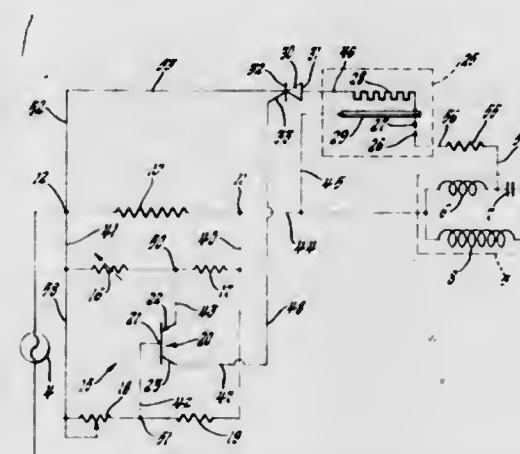
Int. Cl. H02p 5/40, 1/44

U.S. Cl. 318-221

4 Claims

A speed control circuit for split phase motors of the type having the series combination of a phase winding and an electrical impedance element connected in parallel with the running winding. One diagonal of a resistive bridge circuit having at least one variable resistor is connected across a control circuit resistor, connected in series with the motor across a source of alternating current potential, and the base-emitter electrodes of a transistor are connected across the other diagonal of the bridge circuit. With the bridge circuit

unbalanced with a change of resistance value of the variable resistor in a direction to produce emitter-base current flow through the transistor, this device conducts through the emitter-collector electrodes to complete an energizing circuit for the gate-cathode electrodes of a silicon controlled rectifier. The resulting gate-cathode current flow triggers this



3,576,484 SPEED CONTROL CIRCUIT FOR SPLIT PHASE MOTORS

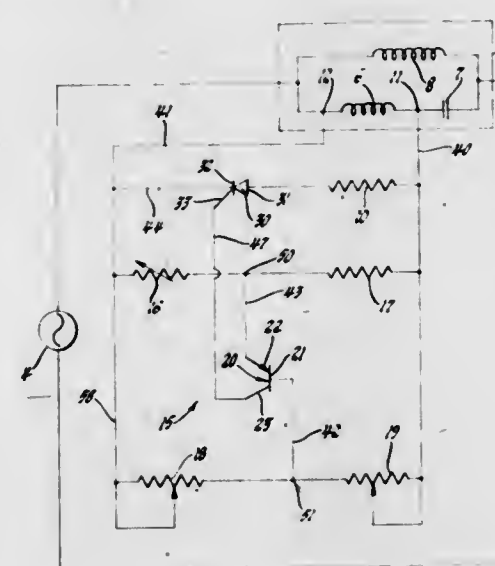
Charles C. Gambill, Kokomo, Ind., assignor to General Motors Corporation, Detroit, Mich.

Filed Nov. 25, 1969, Ser. No. 879,867

Int. Cl. H02p 5/40, 1/44

U.S. Cl. 318-221

4 Claims



A speed control circuit for split phase motors of the type having the series combination of a phase winding and an electrical impedance element connected in parallel with the running winding. One diagonal of a resistive bridge circuit having at least one variable resistor is connected across the phase winding of the motor and the base-emitter electrodes of a transistor are connected across the other diagonal of the bridge circuit. With the bridge circuit unbalanced with a change of resistance value of the variable resistor in a direction to produce emitter-base current flow through the transistor, this device conducts through the emitter-collector electrodes to complete an energizing circuit for the gate-cathode electrodes of a silicon-controlled rectifier. The resulting gate-cathode current flow triggers this device conductive through the anode-cathode electrodes thereof to complete a low resistance circuit in shunt with the phase winding of the motor.

3,576,485 FAULT DETECTION CIRCUIT FOR THE FEEDBACK OF A CONTROL SYSTEM

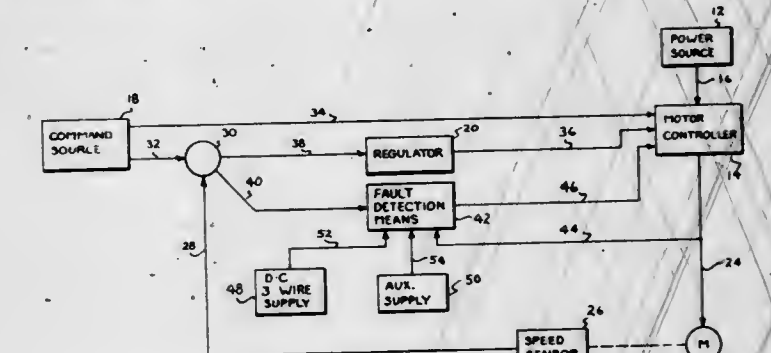
Horace W. Coons, Jr., Erie, Pa., and James L. Erb, Kadima, Nigeria, assignors to General Electric Company

Filed May 5, 1969, Ser. No. 9,459

Int. Cl. H02p 3/00

U.S. Cl. 318-434

8 Claims



To protect a DC adjustable speed motor against rotation at excessive speeds, a fault detection circuit prevents the motor from being energized by a motor control system unless a speed feedback circuit is complete prior to startup of the motor by causing a normally energized switch to be biased to a deenergized state, preventing the motor control system from energizing the motor, when the feedback circuit is incomplete. After the control system has begun energizing the motor, the fault detection circuit assures that the feedback circuit is complete and that the feedback signal is of the required polarity and is approximately proportional to the actual speed of the motor by comparing the feedback signal with a signal which varies as a function of the excitation voltage applied to the armature of the DC motor. When the fault detection circuit determines that the signal proportional to the excitation voltage is a preselected amount greater than the level of the feedback signal, the aforementioned normally energized switch is deenergized, resulting in deenergization of the motor.

3,576,486 SERVOSYSTEM WITH VARYING ANGULAR RELATIONSHIPS BETWEEN A PRIMARY CONTROL AXIS AND ONE OR MORE SECONDARY CONTROLLED AXES

Wilmer Graziano, Via Bertarino, 8, Tortona, and Guido Ruggeri, Via Broggi, 7, Milan, Italy

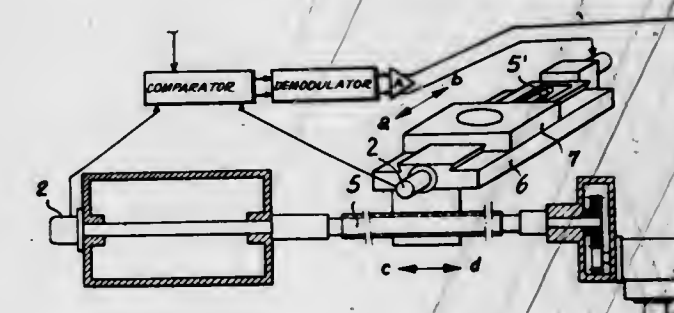
Filed Feb. 14, 1967, Ser. No. 615,951

Claims priority, application Italy, Feb. 15, 1966, 14528

Int. Cl. G05b 19/24

U.S. Cl. 318-573

1 Claim



A reference transducer is connected to a control shaft via a transmission. Turning the control shaft through one angle turns the reference transducer through a second unique angle. Conventional servosystem apparatus interconnects the reference transducer with the responsive transducers which are directly connected to response shafts. Consequently, the response shafts are turned through the second angle, and not through the same first angle as the control shaft.

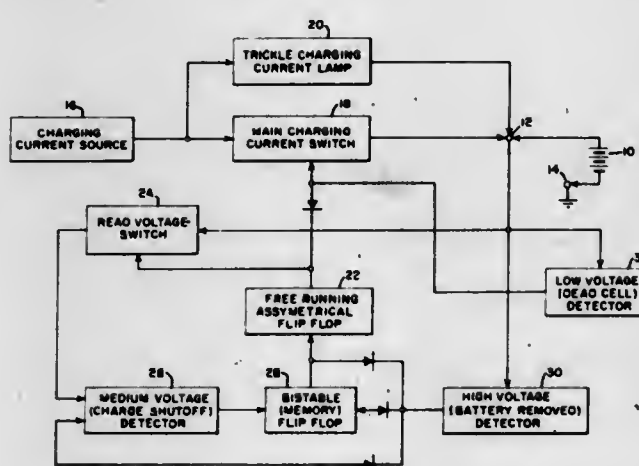
3,576,487 BATTERY CHARGING CIRCUIT UTILIZING MULTIVIBRATOR LOCKING MEANS

Robert F. Chase, Lynchburg, Va., assignor to General Electric Company

Filed Dec. 22, 1969, Ser. No. 887,030
Int. Cl. H02j 7/10

U.S. Cl. 320-39

9 Claims



A battery charger utilizes a switch which is alternately opened and closed by a multivibrator. When the switch is closed, the battery receives a charging current. When the switch is open, the battery voltage is sensed. If the sensed battery voltage exceeds a selected magnitude, the multivibrator is locked so that the switch remains open.

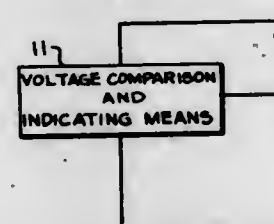
3,576,488 BATTERY DISCHARGE INDICATOR AND CONTROL CIRCUIT

Wilhelm J. Zug, Raleigh, N.C., and Harold C. Riggs, Langhorne, Pa., assignors to ESB Incorporated

Filed June 25, 1968, Ser. No. 739,735
Int. Cl. H02j 7/00

U.S. Cl. 320-48

4 Claims



A battery discharge indicator which is particularly adapted for monitoring the terminal voltage of a battery supplying power for a battery-operated industrial truck. The indicator is operative to provide a warning signal when the voltage of the battery falls below a given value and includes timing and switching means which, if the battery is not recharged within a predetermined period of time is operative to prevent the truck from doing any work other than travelling thereby reserving the power remaining in the battery for the return of the truck to the charging station.

3,576,489 PHASE DETECTION AND COMPARISON APPARATUS FOR DETERMINING THE PHASE DERIVATIVE WITH RESPECT TO FREQUENCY OF AN EDDY CURRENT TEST SIGNAL

Kenneth J. Law, Southfield, and Gordon R. Brown, Livonia, Mich., assignors to J. K. Law Engineers, Inc., Detroit, Mich.

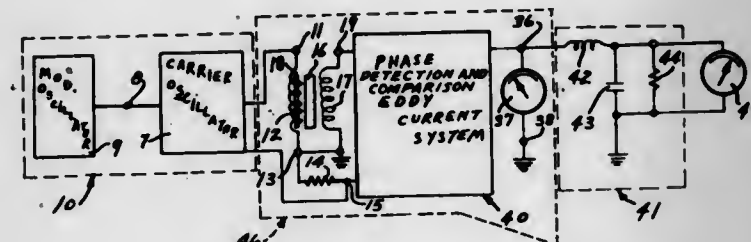
Filed Mar. 13, 1969, Ser. No. 806,826
Int. Cl. G01r 33/12

U.S. Cl. 324-40

3 Claims

An electronic eddy current apparatus for detecting and displaying the phase derivative with respect to frequency of

an eddy current flux responsive coil signal. A frequency modulated input is applied to a phase detection and comparison system, the output of which is filtered to separate the carried phase component from the phase modulation com-



ponent, and the phase modulation component is applied to a suitable indicating device to display the phase derivative with respect to frequency. This signal is indicative of electrical properties of a test piece which are affected by microstructure, alloy, and so forth of the test piece.

3,576,490 METHOD AND APPARATUS OF DETECTING THE IMPEDANCE OF COAXIAL TRANSMISSION LINE BY CHARGING AND DISCHARGING SAID LINE

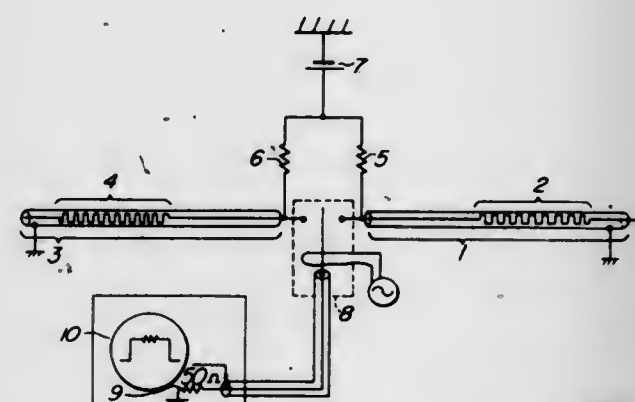
Tsutomu Nishino, Yokohama, Japan, assignor to Matsushita Electric Industrial Co., Ltd., Osaka, Japan

Filed Jan. 13, 1969, Ser. No. 790,746

Claims priority, application Japan, Jan. 18, 1968, Jan. 19, 1968, 43/3105; 43/3642
Int. Cl. G01r 27/00

U.S. Cl. 324-57

7 Claims



A method and apparatus for measuring the impedance of a coaxial transmission line in which a coaxial line to be measured is connected in an intermediate portion of a cable having a known characteristic impedance, and after the cable is charged up to a certain voltage, the charge is discharged by a large-capacity high-speed switch through a resistive terminator having a resistor whose impedance matches the known impedance. The discharged pulse voltage waveform appearing across the terminals of the resistor is observed by an oscilloscope to measure the impedance of the coaxial transmission line.

3,576,491 RESISTANCE MEASURING BRIDGE CIRCUIT INCLUDING OUTPUT GATING MEANS

Richard D. Thornton, Concord, Mass., assignor to Thornton Associates, Inc., Waltham, Mass.

Filed Aug. 12, 1968, Ser. No. 751,878

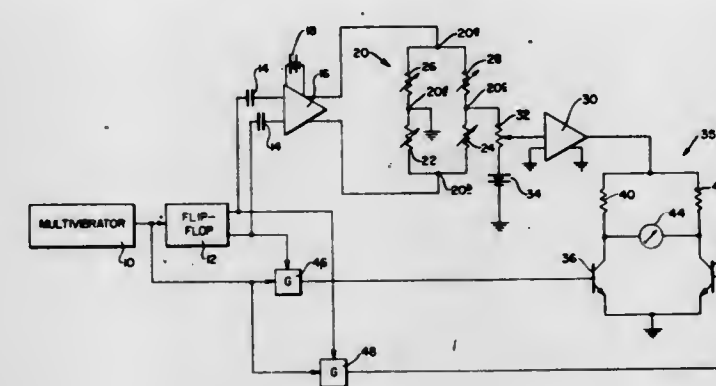
Int. Cl. G01r 27/02

U.S. Cl. 324-62

5 Claims

In a conductivity bridge a switching system is employed to allow only selected portions of the bridge output signal to pass through the output indicator meter. More specifically, initial portion of the signal waveform output, corresponding to the time during which the stray capacitance in the circuit

is becoming fully charged, is prevented from passing through the meter, thereby eliminating the effect of such capacitance



in the circuit and thus yielding a more accurate measurement of an unknown resistance.

3,576,492 MEAN POWER DETECTOR CIRCUIT EMPLOYING A SEMICONDUCTOR DIFFERENTIAL AMPLIFIER ON AN INTEGRATED CIRCUIT CHIP

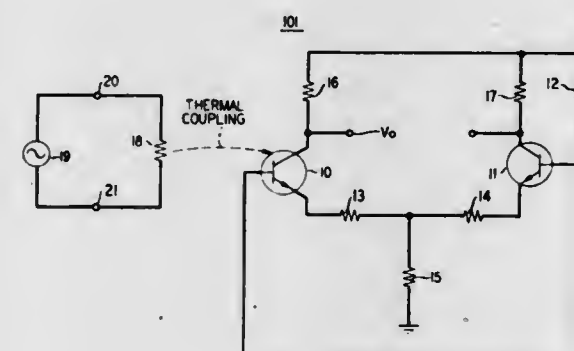
Tadikonda N. Rao, Plainfield, N.J., assignor to Bell Telephone Laboratories, Incorporated, Murray Hill, N.J.

Filed May 21, 1969, Ser. No. 826,406

Int. Cl. G01r 5/26

U.S. Cl. 324-106

1 Claim



A mean power detector circuit utilizes a differential amplifier on an integrated circuit chip to measure the true mean power of any waveform. A suitable resistor is thermally coupled to one transistor of the amplifier and is substantially isolated from the other transistor. When the resistor is connected to the signal to be measured, the thermal dissipation in the resistor affects the volt-ampere characteristics of the transistor to which it is coupled. Changes resulting from variations in ambient conditions or transistor characteristics are rejected by the differential arrangement. Thus the output of the amplifier is a measure of the mean power of the input signal and therefore is a measure of either the mean square voltage or the mean square current of the signal source.

3,576,493 MOLDED CONDUCTOR HOUSING WITH A MOLDED CAPACITANCE TAP AND METHOD OF MAKING SAME

Henry N. Tachick, Pittsfield, and Richard H. Arndt, Lenox, Mass., assignors to General Electric Company

Filed Sept. 25, 1969, Ser. No. 860,967

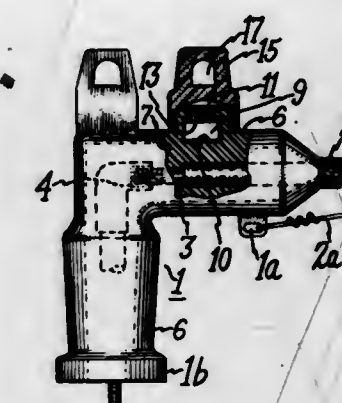
Int. Cl. G01r 19/16

U.S. Cl. 324-133

7 Claims

A capacitance divider for deriving power from, and detecting electrical energization of, an electrical conductor embedded in a body of insulating material is constructed by forming a cavity in the insulating material and bonding a layer of conductive elastomeric material to the inner surface of the cavity at a predetermined position between the em-

bedded conductor and a conductive ground shield on the outer surface of the insulating material, thereby to afford a



voltage dividing capacitance tap electrode from which measurements can be taken in a conventional manner.

3,576,494 DIGITAL COMPUTER CONTROLLED TEST SYSTEM

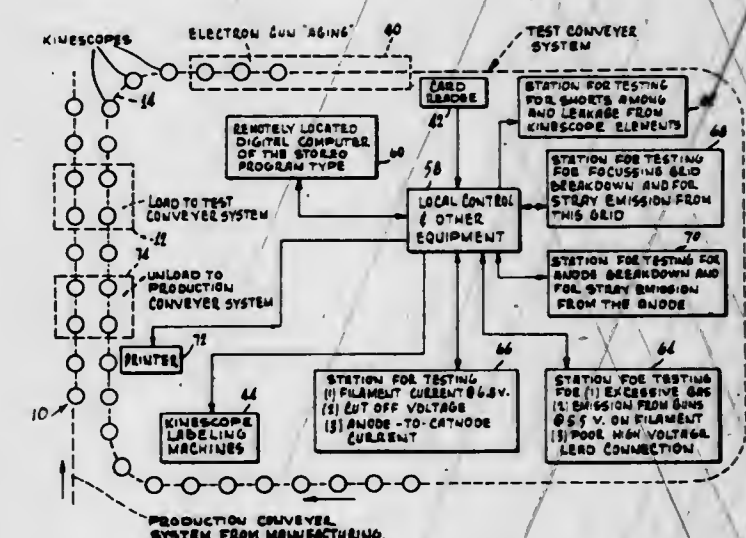
Walter Endres Bahls, Caldwell, N.J.; Robert E. Benway, Marion, Ind.; Alfred C. Grover, Jr., Greenbrook, N.J.; David M. Priestley, Medfield, Mass.; John Regnault, Jr., and Leo M. Whitcomb, Marion, Ind., assignors to RCA Corporation

Filed July 23, 1967, Ser. No. 653,083

Int. Cl. G01r 15/12; 31/22

U.S. Cl. 324-73

9 Claims



Relates generally to the problem of testing mass produced articles. The problem and its solution are discussed in terms of a highly sophisticated, relatively complex article, a color kinescope, many different parameters of which must be measured to ascertain whether the kinescope is suitable for incorporation in a color television receiver. The testing system described includes a digital computer of the stored program-type which automatically controls all phases of the test procedure.

3,576,495 TUNING CIRCUIT HAVING MEANS FOR COMPENSATING FOR THE COUPLING OF THE LOCAL OSCILLATOR SIGNAL TO THE ANTENNA WINDING

Akiyuki Yoshizato, Tokyo, Japan, assignor to Alps Electric Company, Limited, Tokyo, Japan

Filed Jan. 10, 1969, Ser. No. 790,324

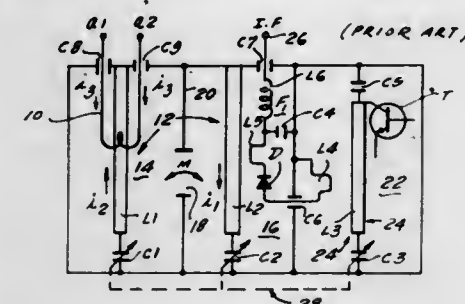
Int. Cl. H04b 1/26

U.S. Cl. 325-436

7 Claims

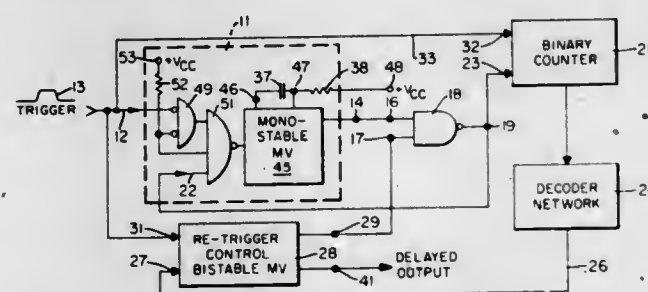
A tuning circuit comprises an antenna winding inductively coupled to a first inductor, which in turn is inductively coupled to a second inductor. A local oscillator circuit induces a

signal in said second inductor, which signal tends to cause an unwanted signal to be induced in the first inductor and ultimately in the antenna winding. Means are provided to opera-



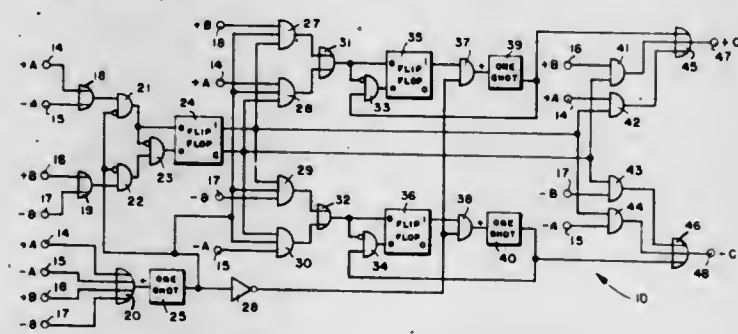
tively couple the second inductor and the antenna winding to induce in the latter a second signal in opposite phase to the unwanted signal, thereby to substantially cancel the unwanted signal in the antenna winding.

3,576,496
DIGITAL CONTROLLED TIME MULTIPLIER
Garry Barger Garagnon, Redwood City, Calif., assignor to Ampex Corporation, Redwood City, Calif.
Filed Nov. 17, 1969, Ser. No. 877,156
Int. Cl. H03k 17/26
U.S. Cl. 328-55 9 Claims



A delay circuit in which a monostable multivibrator responsive to an external trigger signal, is disposed initially, with its output fed back to its input for retriggering the multivibrator in response to the trailing edge of each output pulse issued thereby. A counter is connected to the output of the monostable multivibrator and registers the number of pulses issued during the retriggering mode, and in response to a preselected maximum count, causes a switching means to decouple the monostable multivibrator output from the input thereof to terminate the retriggering mode. Accordingly, a time delay is provided equal to a preselected multiple of the timewidth of a single output pulse from the multivibrator. The delay is initiated by receipt of the external trigger signal and terminated when the counter reaches its preset maximum count.

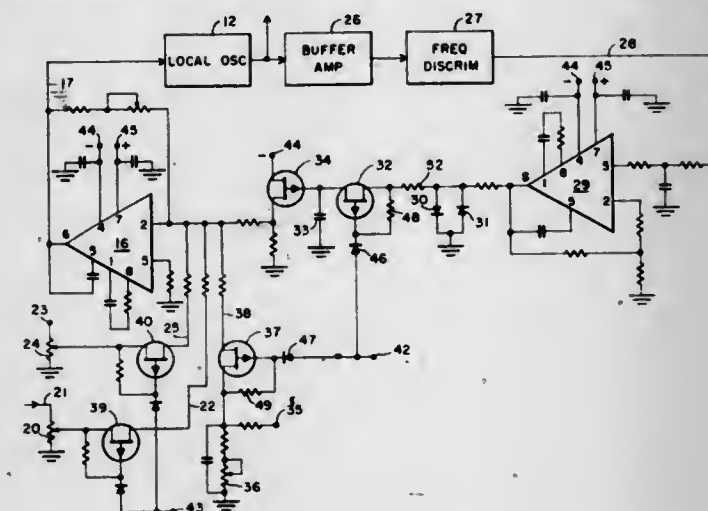
3,576,497
COINCIDENCE DETECTOR AND SEPARATOR FOR A COUNTER
Samuel A. Miller, China Lake, Calif., assignor to the United States of America as represented by the Secretary of the Navy
Filed Nov. 12, 1968, Ser. No. 775,067
Int. Cl. H03k 5/20
U.S. Cl. 328-109 9 Claims



A device which permits a pulse triggered counter to accept pulse trains from one or more inputs where the pulses arriving at the inputs may be time domain coincident, which is the

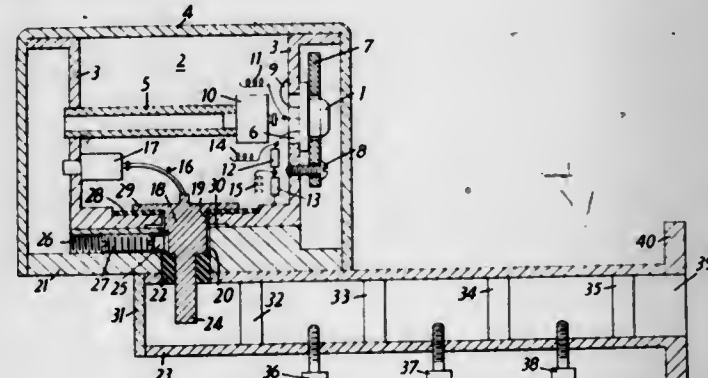
occurrence of two pulses within a specified time interval. The device delays one of the simultaneous pulses in time to permit it to be counted at a later time.

3,576,498
SWEEP FREQUENCY OSCILLATOR DRIFT CORRECTION SYSTEMS
Julian D. Hirsch, New Rochelle, N.Y., assignor to The Singer Company, New York, N.Y.
Filed Oct. 15, 1969, Ser. No. 866,486
Int. Cl. H03b 23/00
U.S. Cl. 331-14 6 Claims



A system for stabilizing the frequency of a voltage-controlled sweep frequency oscillator driven from a sawtooth generator is disclosed. The oscillator drives a frequency discriminator centered at the desired minimum low frequency of the oscillator. During the flyback interval of the sawtooth generator, a single-shot multivibrator is triggered which, by switching, removes the generator sweep voltage and the center frequency voltage from the oscillator and substitutes therefor a predetermined zero set voltage which returns the oscillator frequency to the same minimum low frequency just before each sweep begins. The error voltage from the discriminator, sampled during this period, is applied to a low-leakage capacitor which continuously supplies an integrated correction signal to the oscillator. The multivibrator returns to its stable state at the beginning of each sweep period and switches the oscillator back to its normal sweep control by the sawtooth generator.

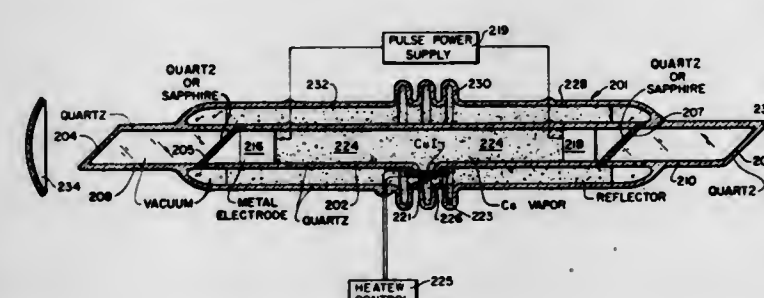
3,576,499
COAXIAL CAVITY TRANSISTOR OSCILLATOR WITH STEP RECOVERY DIODE FREQUENCY MULTIPLIER
Walter Jack Axford, Chalfont Saint Peter; Douglas Jacques Wootton, Harrow, and Francis Robert Trumble, Denham, England, assignors to Electric & Musical Industries Limited, Middlesex, England
Filed Jan. 10, 1969, Ser. No. 790,389
Claims priority, application Great Britain, Jan. 10, 1968, 1401/68
Int. Cl. H03b 5/18, 19/00
U.S. Cl. 331-76 10 Claims



A microwave oscillator including a transistor connected as an oscillator and coupled to a resonator tuned to a first

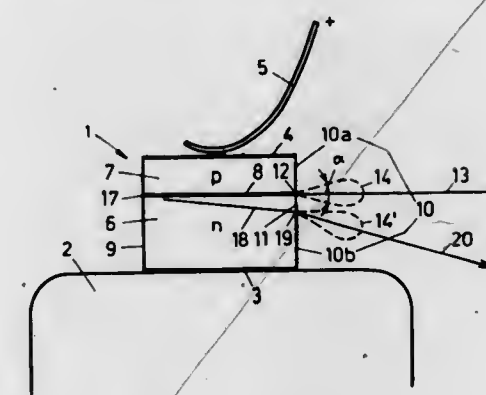
frequency, line means are coupled to the resonator, a step recovery diode is connected in shunt along the line means and a filter arrangement is provided which is tuned to a harmonic of the above-mentioned first frequency and is coupled to the line means to derive a signal of the harmonic from the step recovery diode.

3,576,500
LOW LEVEL LASER WITH CYCLIC EXCITATION AND RELAXATION
Gordon Gould, New York, N.Y.; William R. Bennett, Jr., New Haven, Conn., and William T. Walter, Huntington, N.Y., assignors to Gordon Gould, New York, N.Y.
Continuation-in-part of application Ser. No. 426,082, Jan. 18, 1965. This application Nov. 30, 1965, Ser. No. 510,618
Int. Cl. H01s 3/00, 3/09, 3/14
U.S. Cl. 331-94.5 11 Claims



There are disclosed low energy level lasers employing inelastic collisions to populate the upper laser level and to depopulate the lower laser level wherein the population and depopulation processes are done cyclically rather than simultaneously. The laser is also characterized by the fact that transitions from the upper laser level to the lower laser level (the laser transition) and the (relaxation) transitions from the lower laser level to still lower energy (sink) levels are at least partially forbidden. On the other hand, transitions from the sink level to the upper laser level (the excitation transition) is allowed or at least less strongly forbidden than the relaxation transition.

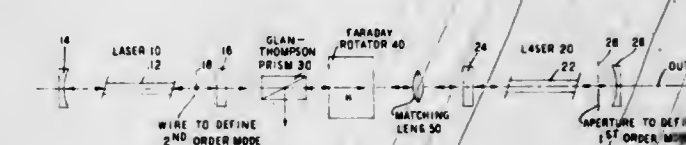
3,576,501
DIODE LASER HAVING A ROUGHENED N-ZONE JUST BELOW THE JUNCTION
Christian Deutsch, Zollikofen, Switzerland, assignor to Institut für angewandte Physik der Universität Bern, Bern, Switzerland
Filed Feb. 26, 1968, Ser. No. 708,128
Claims priority, application Switzerland, Mar. 7, 1967, 3353/67
Int. Cl. H01s 3/18
U.S. Cl. 331-94.5 3 Claims



A diode laser which has a P-zone, an N-zone and a PN-transition zone therebetween. The laser is provided with two reflecting surfaces, and at least one of these does not reflect completely. A bundle of light is generated and amplified by a direct current flowing from the P-zone to the N-zone and is

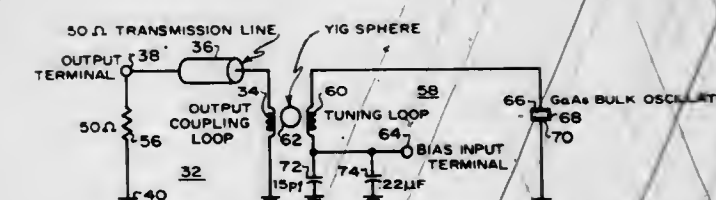
reflected back and forth in the plane of the transition zone. Incomplete reflection of at least one of the surfaces is accomplished by covering or roughening a portion of the same almost, but not completely, up to the line along which a usable bundle of rays emerges.

3,576,502
TRANSVERSE MODE SWITCHING AND IMAGE AMPLIFICATION IN OPTICAL MASERS
Wilbur D. Johnston, Jr.; Tingye Li, Middletown, and Peter W. Smith, Little Silver, N.J., assignors to Bell Telephone Laboratories, Incorporated, Murray Hill, N.J.
Filed May 13, 1968, Ser. No. 728,502
Int. Cl. H01s 3/00
U.S. Cl. 331-94.5 16 Claims



Transverse mode switching is accomplished in a laser oscillating in at least one transverse mode by the injection therein of a low level seeding signal of the desired output mode. If the laser is designed to enhance transverse mode competition (i.e., the cavity geometry approaches either a concentric or plane parallel configuration), then a seeding signal of the correct frequency will cause the laser to switch (i.e., spatially lock) to oscillation entirely in the injected mode. In addition, if the cavity resonator is frequency degenerate at the frequency of a complex (i.e., many transverse modes) input signal, and if the resonator is designed to provide approximately equal gain for all of these transverse modes, then the laser will lock onto the transverse modes of the input signal and image-amplify the signal.

3,576,503
YIG-TUNED SOLID STATE OSCILLATOR
Delon C. Hanson, Los Altos, Calif., assignor to Hewlett-Packard Company, Palo Alto, Calif.
Filed Nov. 12, 1969, Ser. No. 875,999
Int. Cl. H03b 7/14
U.S. Cl. 331-96 13 Claims



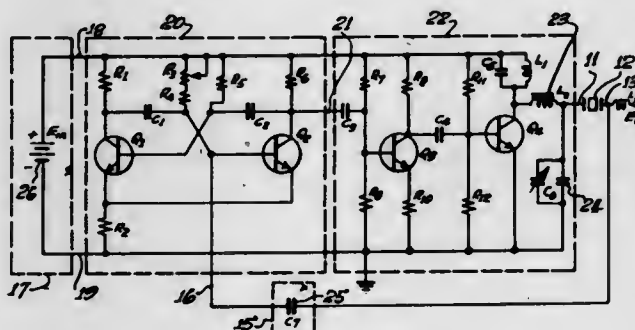
An output coupling loop and a tuning loop are supported about a common axis and spaced-apart in parallel planes orthogonally intersecting the common axis. These loops are magnetically coupled by a YIG sphere supported along the common axis with its center positioned between the parallel planes. The output coupling loop is electrically connected by a matched transmission line across a matched load, and the tuning loop (either alone or in combination with a series gap capacitance) is electrically connected by a pair of parallel-connected bypass capacitors across a bulk-oscillating device. One of these bypass capacitors and the bulk-oscillating device are supported on a heat sink in a plane parallel to the common axis and orthogonal to the parallel planes. Both loops, the YIG sphere, and the bulk-oscillating device are mounted in the gap between the poles of a closed loop electromagnet.

3,576,504

TRANSFORMERLESS DC TO AC POWER SUPPLY
John V. Lopatauskas, Santa Monica, Calif., assignor to TRW Semiconductors, Inc., Los Angeles, Calif.
Filed Dec. 3, 1968, Ser. No. 780,618
Int. Cl. H03b 5/36

U.S. Cl. 331-116

4 Claims



A transformerless DC to AC power supply which comprises a piezoelectric crystal dimensioned to be resonant at a given frequency, excited to resonance by the application of a sinusoidal signal derived from a multivibrator powered by a direct-current power source. A feedback loop adapts the output of the piezoelectric crystal to synchronize the operating frequency of the multivibrator at the resonant frequency of the piezoelectric crystal.

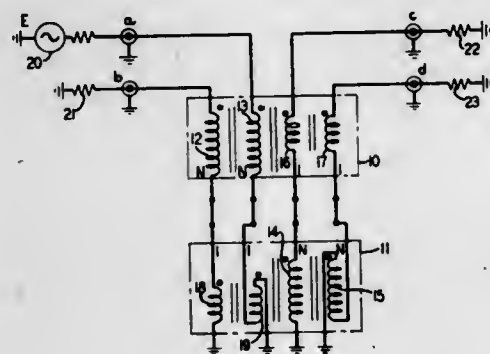
3,576,505

TRANSFORMER HYBRID COUPLER HAVING ARBITRARY POWER DIVISION RATIO

Harold Seidel, Warren, N.J., assignor to Bell Telephone Laboratories, Incorporated, Murray Hill, N.J.
Filed Oct. 27, 1969, Ser. No. 869,606
Int. Cl. H01p 5/12

U.S. Cl. 333-11

3 Claims



This application describes a transformer hybrid coupler in which the power division ratio can have essentially any arbitrary value. The coupler comprises two quadrifilar coils, each one of which includes two, tightly coupled N:1 transformers. The coils are series connected such that one end of each of the primary windings of one coil is coupled to one end of a different one of the secondary windings of the other coil in a manner such that the network representation of the resulting four-port with respect to the symmetric mode of excitation is the dual of the network representation with respect to the antisymmetric mode of excitation. The other ends of the windings of either one of the coils constitute the four coupler ports, while the other ends of the windings of the other coil are connected to a common junction, typically ground.

3,576,506

ENERGY TRANSLATING DEVICES

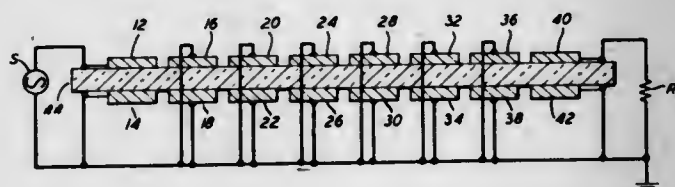
Robert L. Reynolds, Allentown, and Roger A. Sykes, Bethlehem, Pa., assignors to Bell Telephone Laboratories, Incorporated, Murray Hill, N.J.
Filed Apr. 24, 1968, Ser. No. 723,676
Int. Cl. H03h 9/00

U.S. Cl. 333-72

6 Claims

Monolithic crystal filters forming respective resonators from a crystal wafer and three or more electrode pairs which

are sufficiently massive and spaced far enough so that the otherwise undisturbed coupling between one resonator and any other resonator is such that there exists a zero-impedance-resonance to zero-impedance-resonance frequency range less than one-third the smallest antiresonant-to-reso-



nant frequency range of one of the two-coupled resonators, have at least one pair short circuited. The short-circuited pair is tuned by appropriate mass loading so that its observed minimum-impedance frequency corresponds to the desired midband frequency of the filter.

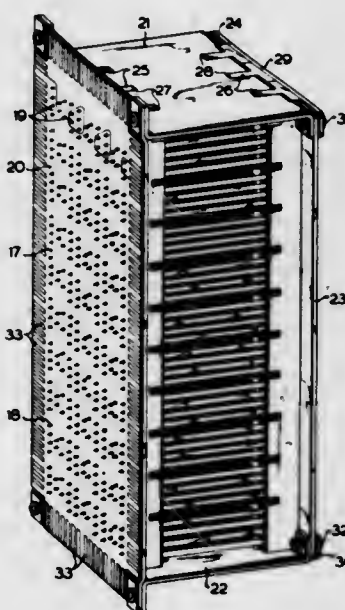
3,576,507

REED RELAY SYSTEM

Peter Kunz, Niederhochstadt, and Helmut Barkow, Frankfurt-Nordweststadt, Germany, assignors to Telefonbau und Normalzeit GmbH, Frankfurt am Main, Germany
Filed Jan. 16, 1970, Ser. No. 3,416
Int. Cl. H01h 67/24, 67/30

U.S. Cl. 335-152

6 Claims



A relay system or relay block consists of stacked reed relays each housed in an envelope. Said relays are supported by pairs of spaced parallel relay supports which, in turn, are received by a frame structure having a front panel including printed circuitry means for properly interconnecting the constituent reed relays of the relay system or block, and for connecting the relay system or block with external equipment.

3,576,508

TRANSFORMER APPARATUS

Arnold J. Liberman, Skokie, Ill., assignor to Litton Precision Products Inc., Beverly Hills, Calif.
Filed Aug. 25, 1969, Ser. No. 852,799
Int. Cl. H01f 21/08

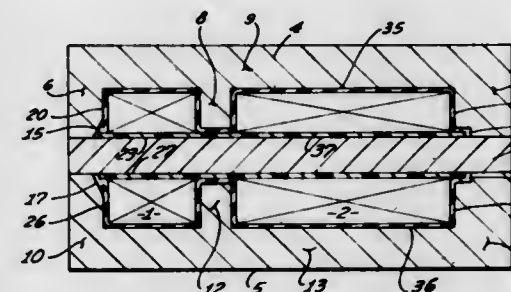
U.S. Cl. 336-165

6 Claims

A transformer is provided in which the primary and secondary windings are wound in the form of a rectangular tube and are mounted spaced apart on the same core leg; at least one outer yoke leg is provided which is joined at its end to the aforesaid core leg to form a closed magnetic path or loop; cutaway portions or gaps are formed in each end of the yoke leg to form a space between a portion of the core leg and the yoke. The primary and secondary windings substantially fill the space or window formed between the inner periphery of the core leg and yoke. In addition an insulating

tube is mounted on the core leg in between the primary and secondary windings and the core lamination. This insulating tube is of a length which extends beyond the windings and

high heat dissipation, and integral contact and terminal members molded in place in the end cap with contacts on the interior of the housing and juxtaposed to brush on a shaft-carried disc and with terminals exposed on the rear exterior.



into the cutaway portions. In addition a lining of insulating material is disposed lining the inner periphery of the yoke to insulate the windings further and extends into the cutaway portion.

3,576,509

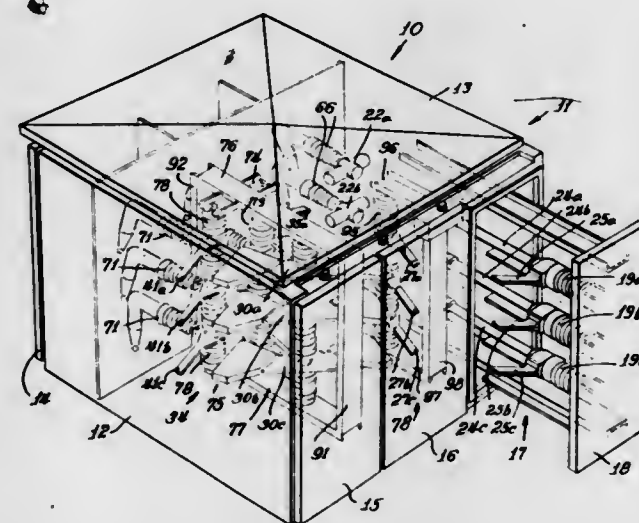
METAL ENCLOSED LOOP SWITCHES WITH DRAWOUT FUSES, FUSE ISOLATOR SWITCHES AND GROUND SWITCHES

Joseph Bernatt, Arlington Heights, Ill., assignor to S & C Electric Company, Chicago, Ill.

Filed Sept. 22, 1969, Ser. No. 859,976
Int. Cl. H01h 85/00

U.S. Cl. 337-8

28 Claims



Loop feeder switches have switch blades connected to loop conductors and stationary switch contacts commonly mounted with stationary contacts of fuse isolator switches the blades of which are connected to drawout fuses. Ground switches connect the loop feeder switch blades to ground. Manual operators for the switch blades all are located at one end of the metal enclosed support frame in one embodiment. In another embodiment the manual operator for the fuse isolator switches is remote from the other switch operators. Arc extinguishing structures for the switch contacts cooperate with the respective switch blades.

3,576,510

SIMPLE HIGH-PERFORMANCE SINGLE-TURN POTENTIOMETER

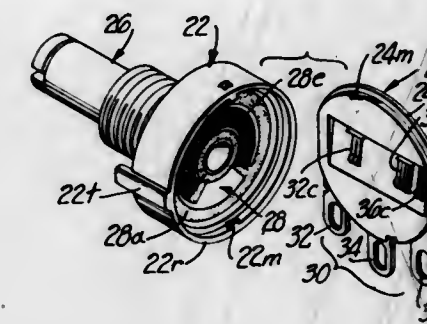
Frank J. Bruder, Newport Beach, Calif., assignor to Bowins, Inc.

Filed Apr. 6, 1970, Ser. No. 25,704
Int. Cl. H01c 9/02

U.S. Cl. 338-150

7 Claims

A simple one-turn potentiometer having a housing, an adjustment shaft molded in place in the housing, a rotary ceramic chip element on the interior end of the shaft to give



terior of the housing and juxtaposed to brush on a shaft-carried disc and with terminals exposed on the rear exterior.

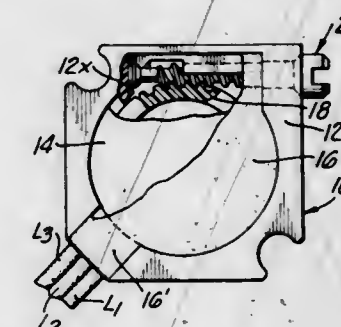
3,576,511

POTENTIOMETER WORM SCREW RETENTION

Robert D. Michik, Walnut, Calif., assignor to Bourns, Inc.
Filed Oct. 27, 1969, Ser. No. 869,575
Int. Cl. H01c 9/00

U.S. Cl. 338-162

6 Claims



Simple inexpensive means for preventing undesired axial translation of the worm screw and attendant operational changes in a worm screw adjusted resistor irrespective of loose mechanical dimensional tolerances, consisting of providing on the screw a beveled annular conical cam surface and a complementary beveled surface on the interior of the resistor housing and a seat for the interior end of the worm screw, the beveled surfaces coacting to force the end of the screw against the seat irrespective of dimensional tolerance variations.

3,576,512

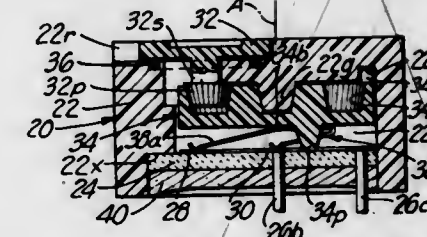
POTENTIOMETER

Robert D. Michik, Walnut, Calif., assignor to Bourns, Inc.

Filed Nov. 24, 1969, Ser. No. 879,050
Int. Cl. H01c 9/00

U.S. Cl. 338-174

5 Claims



Ratcheting geared-drive simple potentiometer characterized by minimum number of parts of inexpensive materials and ease of assembly, the housing having a keyhole slot for insertion of a driving bevel pinion which is held in position by a contact-carrying driven bevel gear which is normally con-

strained to operational rotation about an operating axis defined by a tapered gudgeon which permits gear deflection and disengagement or slipping of gear teeth at the end of traverse of the potentiometer contact.

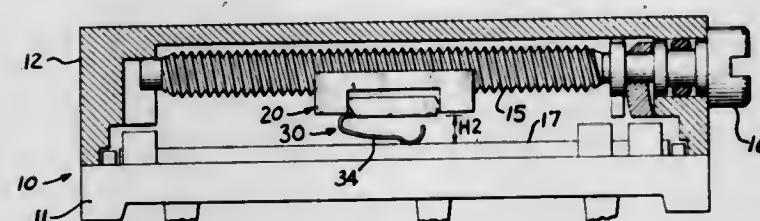
3,576,513 SLIDER ASSEMBLY FOR LEAD SCREW ACTUATED POTENTIOMETER

Victor G. Mathison, Solana Beach, and Charles W. Yungblut, San Diego, Calif., assignors to Electra/Midland Corporation, Kansas City, Kans.

Filed Sept. 10, 1969, Ser. No. 856,661
Int. Cl. H01c 9/02

U.S. Cl. 338—180

2 Claims



A slider for a miniaturized potentiometer having a plastic body in the form of half nut for engaging the lead screw and in which the contact member is of "sled" shape with a reversely bent wiper portion and pointed runner or side portions, which side portions are accommodated in recesses formed in the sides of the body and held in place by reason of an interference fit with the points digging into the body of the slider.

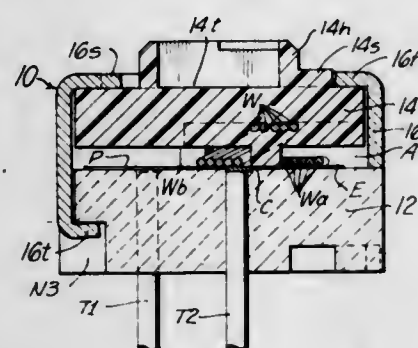
3,576,514 POTENTIOMETER WITH EMBEDDED REVERSELY BENT CONTACT WIRES

Robert D. Michik, Riverside, Calif., assignor to Bourns, Inc.

Filed Jan. 2, 1969, Ser. No. 789,108
Int. Cl. H01c 1/12, 5/02

U.S. Cl. 338—202

8 Claims



Miniature potentiometer of such small dimensions that resistance element and contact dimensions are so reduced as to create severe problems in respect to high contact-resistance-variation, wherein contact-resistance-variation is grossly minimized by employing as a contact device for brushing and bridging the resistance element and a return conductor or bus a set of very small-gauge resilient wires arranged in side-by-side ribbonlike configuration with central portions embedded in a rotor member and end portions reversely bent to form a number of resilient independently movable spring contacts disposed to brush a series of closely spaced points along a line transverse of the resistive element. Thus the contact pressure is not concentrated at a single point but at a maximum number of points, reducing contact wear and electrical contact-resistance-variation.

3,576,515 PRINTED CIRCUIT EDGE CONNECTOR

Robert Houston Frantz, Mount Holly Spring, Pa., assignor to AMP Incorporated, Harrisburg, Pa.

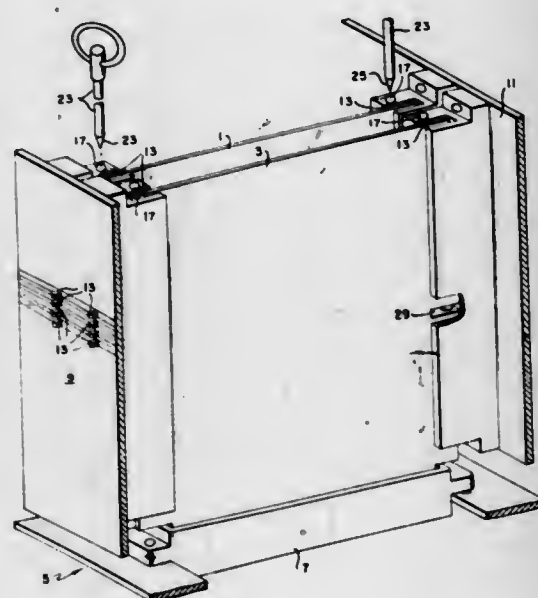
Filed Aug. 27, 1968, Ser. No. 755,704
Int. Cl. H01r 13/62

U.S. Cl. 339—74

6 Claims

The disclosure relates to a printed circuit edge connector which is capable of connecting a plurality of printed circuit

boards with connector elements extending outwardly from the edges thereof to a connector housing wherein the terminals are positioned on at least two adjacent sides of the printed circuit board and without this assembling of the connector housing. This is accomplished by use of a pin which is inserted into a slot in the connector housing in which the connector elements are positioned and pushes all of the connector elements therein in a direction out of the slot through



which the terminals on the printed circuit board would travel during assembly. In this way, the printed circuit board can be slid along the grooves of the connector housing for the full length thereof while the pin is inserted and is biasing the connectors in the connector housing out of the path of travel. Upon removal of the pin, the connectors in the connector housing assume their original position due to their resiliency or spring action and about the terminals of the printed circuit to complete the electrical connection.

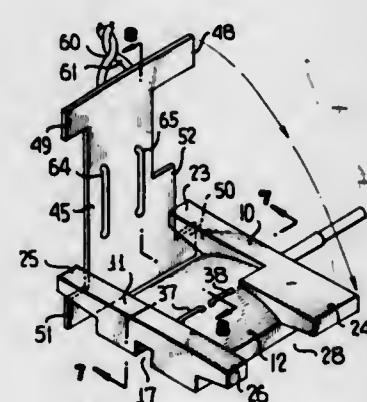
3,576,516 QUICK CONNECT-QUICK DISCONNECT ELECTRICAL CONNECTOR

Leland G. Mull, Vienna, Va., assignor to Radiation Systems, Incorporated, McLean, Va.

Filed Nov. 13, 1968, Ser. No. 775,317
Int. Cl. H01r 13/54

U.S. Cl. 339—91

17 Claims



An electrical connector has a pair of components, one constituting a plug and the other a receptacle for the plug. The plug is a flexible sheet of insulative material of sufficient resiliency to tend to reassume its original form after deformation, and includes a central elongated strip with pairs of tabs extending to its sides at either end thereof. Conductive leads are attached to the plug with bared portions exposed along a surface of the strip. The receptacle is a bar of insulative material of generally rectangular configuration with arms projecting from the respective corners thereof and conductive leads attached to the bar and having bared portions exposed along a surface thereof. The bared leads on plug and

receptacle are positioned for electrical contact when the two members are united with the strip and the bar in overlying relation and the pairs of tabs locked at either end under the arms projecting from the bar.

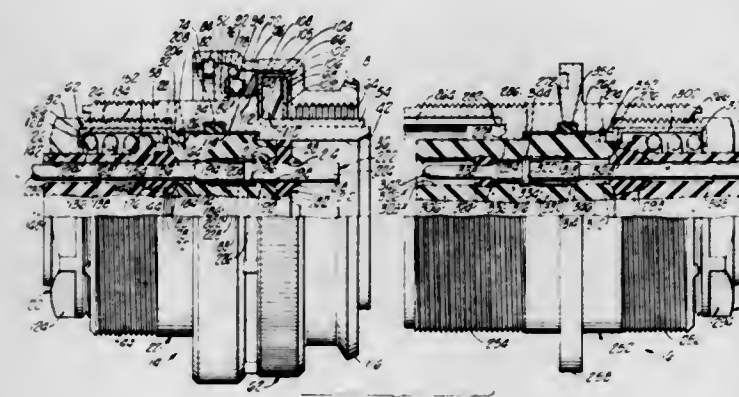
3,576,517 TEMPERATURE-COMPENSATED ELECTRICAL CONNECTOR

George S. Johnson, Canoga Park; Bruce K. Arnold, Pasadena, and Joseph Sugar, Los Angeles, Calif., assignors to International Telephone and Telegraph Corporation, New York, N.Y.

Filed June 2, 1969, Ser. No. 829,457
Int. Cl. H01r 23/52

U.S. Cl. 339—94

4 Claims



The disclosure relates to a temperature-compensated electrical connector comprising a plug and receptacle connector having an environmental seal confined between spring-loaded interfaces for use under variable environmental conditions. Temperature compensation is achieved by independently spring-loading insulators in both the plug and receptacle connectors. This allows the insulator interfaces, which have viscoelastic sealing members between them, to move with temperature-related seal expansion and contraction. The temperature-compensated spring action compresses individual viscoelastic cones formed on tapered entries on the insulator interfaces to ensure reliable environmental sealing under all conditions. An interfacial seal between the two connectors may be of one-piece construction having double-sided cones around each contact. Wire seals interconnect the spring-loaded members to the insulator and may be formed of double-sided cones installed on the wires in the connector. The thermal expansion springs may be permanently attached to rear insert insulators of the plug and receptacle connectors in a preloaded condition, thus, eliminating the need for compressing the spring during installation.

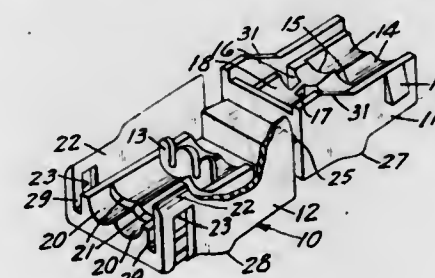
3,576,518 SOLDERLESS CONNECTOR FOR INSULATED WIRES

James H. Bazille, Jr.; Dennis J. Enright, St. Paul, Minn., and James E. Whelan, White Bear Lake, Minn., assignors to Minnesota Mining and Manufacturing Company, St. Paul, Minn.

Filed Nov. 7, 1968, Ser. No. 773,988
Int. Cl. H01r 11/20

U.S. Cl. 339—98

2 Claims



A solderless wire connector containing a slotted resilient metal contact plate in a folding self-locking ribbed and

grooved insulating body having wire-retaining strain relief elements and including an angled wire-supporting surface.

3,576,519 MEANS FOR POLARIZING A CONNECTOR ASSEMBLY

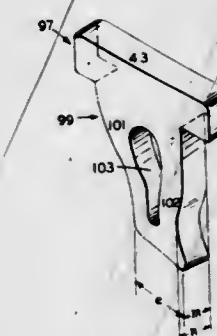
Max L. Janye, North Warren, and Robert W. Pihlblad, Warren, Pa., assignors to Sylvania Electric Products, Inc.

Division of Ser. No. 737,163, June 14, 1968, Pat. No. 3,566,340.

Filed May 18, 1970, Ser. No. 37,962

Int. Cl. H01r 13/64

3 Claims



Removable key means for polarizing a multiple-contact connector assembly for accommodating printed circuit boards whereof at least one key of flexural material has a longitudinal portion thereof discretely formed with a twist therein to resiliently fit within respective spaced apart polarizing channels in a manner that the key can be easily inserted thereto and resiliently retained therein to provide desired polarization of the assembly. The key is also formed with provisions to provide facile removal thereof when a change of polarization is desired.

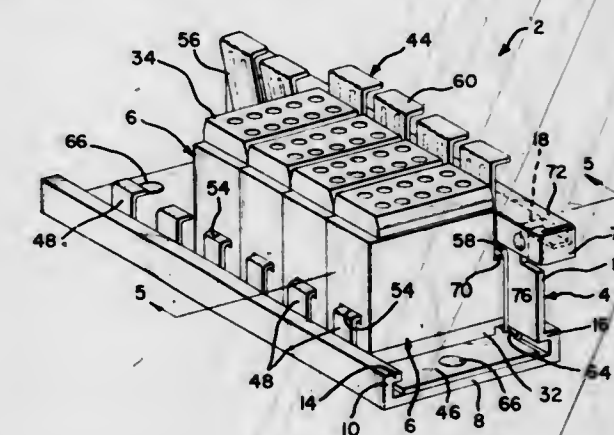
3,576,520 MOUNTING MEANS FOR TERMINAL JUNCTION MODULES

Larry Ronald Stauffer, Camp Hill, Pa., assignor to AMP Incorporated, Harrisburg, Pa.

Filed Apr. 11, 1969, Ser. No. 815,464
Int. Cl. H01r 9/00

U.S. Cl. 339—198

7 Claims



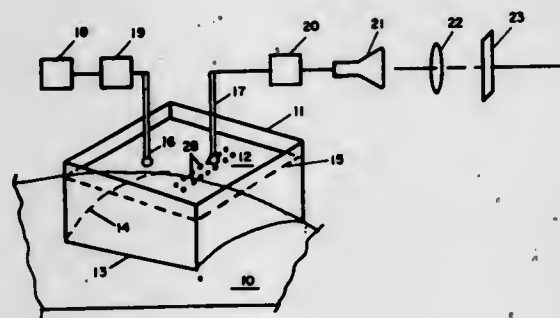
Mounting means for terminal junction modules comprising a channel-shaped frame member having a relatively low sidewall and a relatively high sidewall. A plurality of spaced-apart inwardly directed ears on the low sidewall and are adapted to enter confined recesses on the one end of each module. Resilient spring arms extend upwardly from the web of the frame adjacent to the high sidewall and have inwardly displaced upper portions which define downwardly facing shoulders. These shoulders are adapted to be located above upwardly facing shoulders on the opposite ends of the modules when the modules are positioned between the sidewalls. In order to lock a stack of modules in the channel-shaped member, a slidable locking bar is mounted on the high sidewall and has inwardly directed bosses which are adapted to bear against the surfaces of the latching arms and prevent their movement outwardly away from the modules of the stack.

3,576,521 METHOD AND APPARATUS FOR DETECTING COHERENT ELASTIC WAVE ENERGY

Daniel Silverman, 5969 S. Birmingham St., Tulsa, Okla.
Continuation-in-part of application Ser. No. 512,689, Dec. 9,
1965, now Patent No. 3,400,363. This application June 16,
1967, Ser. No. 646,537
Int. Cl. G01s 9/66

U.S. Cl. 340-3

34 Claims



In the mapping of elastic wave fields in fluids, such as might be involved in recording a sonic hologram in a liquid medium overlying a three-dimensional sonic reflecting surface immersed in the liquid, it is necessary to provide means for measuring the intensity of elastic wave energy at a plurality of points in a matrix of points on a receiving surface. This invention is directed to the use of a simple, cheap means of indicating and/or recording the intensity of elastic wave energy at a plurality of points in such a medium.

This invention involves the preplacement or predistribution of a material, called a detecting or receiving material, over an area comprising many wavelengths in each of two perpendicular directions. At each point of placement of the detecting material, the state of distribution of the material is a function of the intensity of coherent elastic wave energy in the steady state wave pattern at that point. Thus, the intensity of elastic wave energy at each point can be determined from the state of distribution of the material after the initiation of irradiation of those points with elastic wave energy.

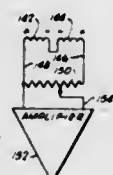
The material can be finely divided solids, powders, encapsulated liquids, or liquid droplets immiscible with the liquid of the medium. The material can also be a liquid miscible with the liquid of the medium, but differing in some measurable characteristic, such as color, conductivity, etc. The material can also be a fluid in dynamic motion in the fluid of the medium, the characteristic motion being a function of the intensity of wave energy at the point. In each case, the state of distribution of the material will vary from the predistribution due to the particle motion of the medium during the irradiation of the point by the elastic wave field, and this variation will be a function of the intensity of the elastic wave field.

3,576,522 METHOD AND APPARATUS FOR ANALOG VELOCITY FILTERING

William E. N. Doty, Houston, Tex.; Donald E. Dunster, and
Douglas S. Sullivan, Ponca City, Okla., assignors to Con-
tinental Oil Company, Ponca City, Okla.
Filed Aug. 1, 1966, Ser. No. 569,227
Int. Cl. G01v 1/28

U.S. Cl. 340-15.5

2 Claims



Multitrace seismic data is analog velocity filtered to reject signals arriving at the detector array along undesired ap-

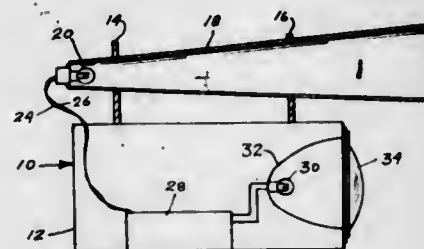
parent velocity paths. The detected seismic signals are recorded on a magnetic medium and read out by means of two oppositely polarized read heads whose outputs are combined and applied to an attenuator and the resultant signals are thereafter summed. The read head spacing and signal attenuation are set in accordance with the spacing of the corresponding detector from the array center. Thus each trace is convolved with a two point operator which is dependent on detector offset. The summation signal includes only events which appear at the detector array along apparent velocity paths greater than a preselected value. The preselected value may be adjusted by varying the speed of the record medium.

3,576,523 POSITION-INDICATING FLASHER FOR BOAT DOCKS

Edmund Clarence Lerbakken, 5608 42nd Ave. South, Min-
neapolis, Minn. 55417
Filed Aug. 4, 1969, Ser. No. 847,174
Int. Cl. G08g 3/00

U.S. Cl. 340-29

3 Claims



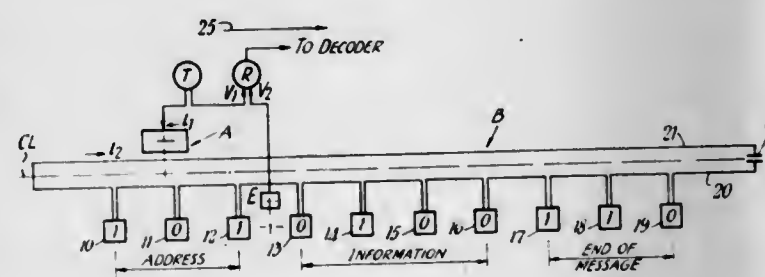
A boat dock position-indicating flasher composed of two lights of different colors which flash alternately. One light has a wide cone of illumination so as to be visible from a wide range of angles. The other light is visible only when the observer is located in direct alignment with the flasher. Because the two lights flash alternately, they can easily be distinguished from one another even at a great distance.

3,576,524 SYSTEMS FOR TRANSMITTING INFORMATION TO MOVING TRAINS

Harry Heggie Ogilvy, Middlesex, England, assignor to British
Railways Board, London, England
Filed June 26, 1967, Ser. No. 648,893
Int. Cl. G08g 1/09

U.S. Cl. 340-32

8 Claims



A system for transmitting local information to a moving train in binary code comprising a number of conductor loops arranged one after the other along the track at the local information point and energized from an alternating current source and a loop aerial on the train which becomes inductively coupled with each of the conductor loops in turn as the train passes the local information point to provide one bit of information from each conductor loop.

3,576,525 INDUCTIVE LOOP VEHICLE PRESENCE DETECTOR

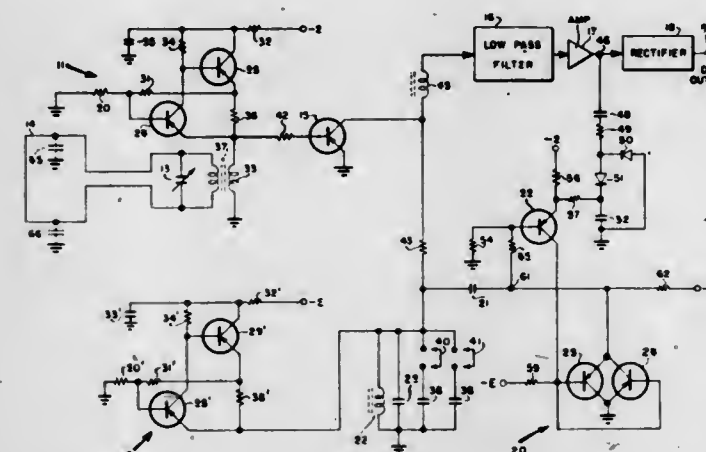
Martin John Prucha, Mountain View, Calif., assignor to
Singer-General Precision, Inc., Binghamton, N.Y. Division
of Ser. No. 172,620, Feb. 12, 1962, Pat. No. 3,364,465

Filed July 17, 1967, Ser. No. 653,925

Int. Cl. G08b 13/00; G08g 1/00

U.S. Cl. 340-38

8 Claims



A vehicle detecting system includes a loop oscillator, a reference oscillator, a mixer for generating a difference frequency signal, and a low-pass filter for passing a normal, low frequency signal from the mixer. When a vehicle moves over the loop, the frequency of the loop oscillator increases, and the difference frequency likewise increases and is rejected by the low-pass filter to provide an output signal. To stabilize the system, a switching circuit is responsive to the output signal and is operable to decrease the reference oscillator frequency somewhat to provide hysteresis for partially self-sustaining the output signal when the low-pass filter rejects the difference frequency.

3,576,526 DETECTION OF KNOCK IN INTERNAL COMBUSTION ENGINES

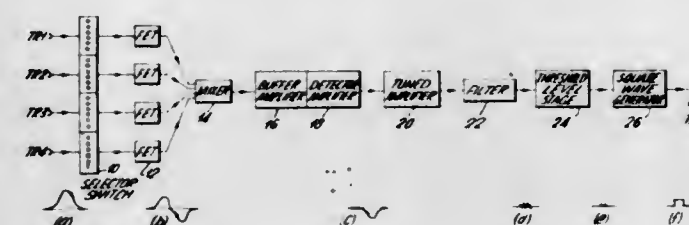
Ronald J. K. Arnold; Robert L. Green, and Howard M.
Smith, Sunbury-on-Thames, England, assignors to The
British Petroleum Company Limited, London, England
Filed Aug. 23, 1967, Ser. No. 662,778

Claims priority, application Great Britain, Aug. 26, 1966,
38,482

Int. Cl. G01l 23/22

U.S. Cl. 340-52

3 Claims



An aural or visual indication of the presence of knock in a spark ignition engine is provided by extracting pressure-indicative signals from the combustion chambers and either feeding knock-indicative portions of the signals to an electroacoustic transducer or displaying the signals on a cathode-ray tube.

3,576,527 SAFETY ALERT FOR AUTOMOBILE BRAKE SYSTEMS

William E. Howard, Baltimore, Md., assignor to The Bendix
Corporation
Filed June 10, 1968, Ser. No. 735,595

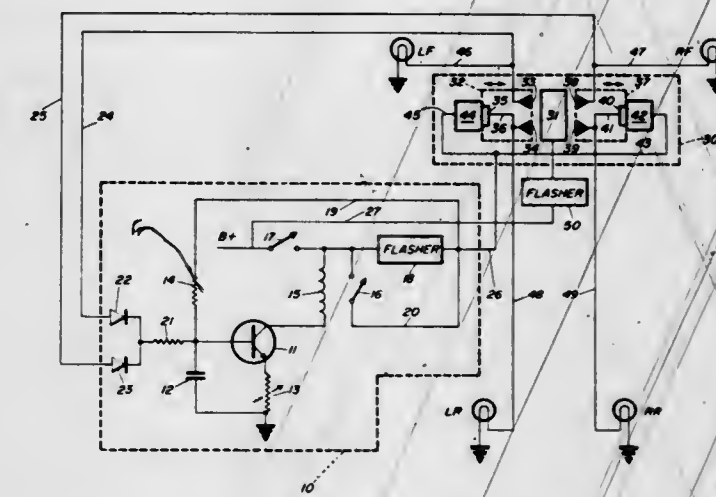
Int. Cl. B60q 1/38, 1/46

U.S. Cl. 340-67

3 Claims

This invention describes a system wherein the brake lights of an automobile flash on and off for a predetermined period

of time after the actuation of the automobile brakes. After the lapse of the flashing period the brake lights remain in a steady on condition for the remainder of the braking period. The flashing of the brake lights is accomplished by incorporation of a solid-state circuit into the turn signal circuit



presently available in most automobiles. The solid-state circuit includes a flasher unit which actuates the brake lights at the beginning of the automobile braking period. A current sensitive switch shorts out the flasher after a predetermined period of time, after which the brake lights remain steadily on.

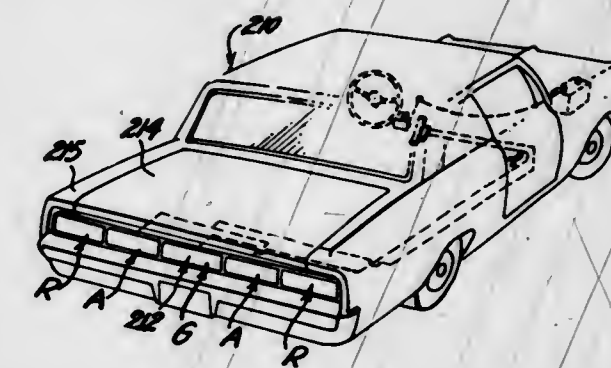
3,576,528 AUTOMOTIVE VEHICLE REAR END SIGNAL LIGHT WARNING METHOD

Jack R. Hendrickson, 3665 Burning Tree Drive, Bloomfield
Hills, Mich. 48013
Division of Ser. No. 459,277, May 27, 1965, Pat. No. 3,395,388
Filed May 14, 1968, Ser. No. 728,935

Int. Cl. B60q 1/26

U.S. Cl. 340-71

4 Claims



An automotive vehicle rear end signal light warning method for signaling the under power, not under power and braking conditions of an automotive vehicle is disclosed. Said method is for use with an automotive vehicle which utilizes a conventional method of warning as to application of the vehicle's brakes consisting of energizing at least one red brake signal light visible from the rear of said vehicle. Said warning method comprising signaling the under-power condition of the vehicle by throwing a first switch other than said brake switch to one position to energize at least one colored signal light other than a red brake signal light visible from the rear of said vehicle, signaling a change from the under-power condition to the not-under-power condition of said vehicle by throwing said first switch to another position to deenergize said colored signal light, signaling a change from the not-under-power condition to the under-power condition of said vehicle by throwing said first switch from said other position to said one position to reenergize said colored signal light, and, while said vehicle is under power, signaling application of the vehicle's brakes by opening a normally closed actuated open second switch other than said brake switch to deenergize said colored signal light, disabling said colored signal

light from being energized so long as the vehicle's brakes remain applied by maintaining open said normally closed actuated open switch so long as said brake switch remains closed, said method operative in conjunction with said conventional method of warning as to application of the vehicle's brakes but without interfering therewith or adding any red brake signal lights thereto.

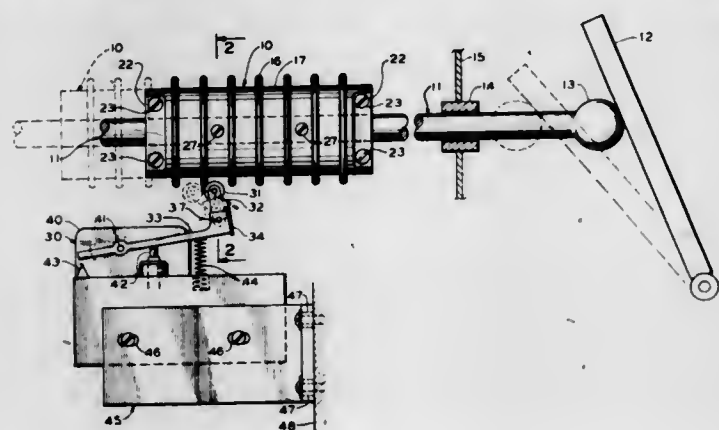
3,576,529

DECELERATION WARNING DEVICE

Marvin L. Garrison, R.R. 2, Seymour, Ind.
Filed Feb. 24, 1967, Ser. No. 618,499
Int. Cl. B60q 1/46

U.S. Cl. 340-72

3 Claims



A sleeve attached to an automobile accelerator rod, the sleeve having circumferential ribs and grooves forming a longitudinal cammed configuration which coacts with a microswitch as the accelerator rod is moved back and forth.

Relaxation of the foot pressure on the accelerator rod causes relative movement between the cammed surface of the sleeve and the microswitch, alternately activating a flashing indicator.

3,576,530

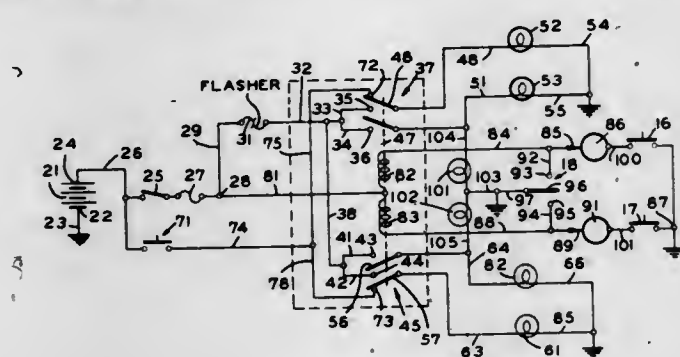
TURN INDICATOR SYSTEM ACTUATABLE BY EITHER OF TWO SWITCH MEANS

William R. Buechler, Birmingham, Mich., and Richard G. Marshall, Huntsville, Ala., assignors to Ford Motor Company, Dearborn, Mich.

Filed Jan. 14, 1965, Ser. No. 425,402
Int. Cl. B60q 1/26

U.S. Cl. 340-81

6 Claims



A turn signal system for an automotive vehicle comprising a steering wheel, a source of electrical energy, a flasher, a first turn signal lamp mounted on one side of said vehicle, a second turn signal lamp mounted on the other side of said vehicle, a turn signal switch having an open and two different closed positions for coupling either said first turn signal lamp or said second turn signal lamp to said source of electrical energy through said flasher to a selected one of said closed positions, means coupled to said steering wheel and to said turn signal switch for opening said turn signal switch if closed as said steering wheel is returned toward a neutral position after the completion of a turn, a first pushbutton switch means mounted on said steering wheel coupling said first

turn signal lamp to said source of electrical energy through said flasher when manual pressure is applied to said first pushbutton switch means, a second pushbutton switch means mounted on said steering wheel at the opposite side from said first pushbutton switch means and coupling said second turn signal lamp to said source of electrical energy through said flasher when manual pressure is applied to said second pushbutton means.

3,576,531

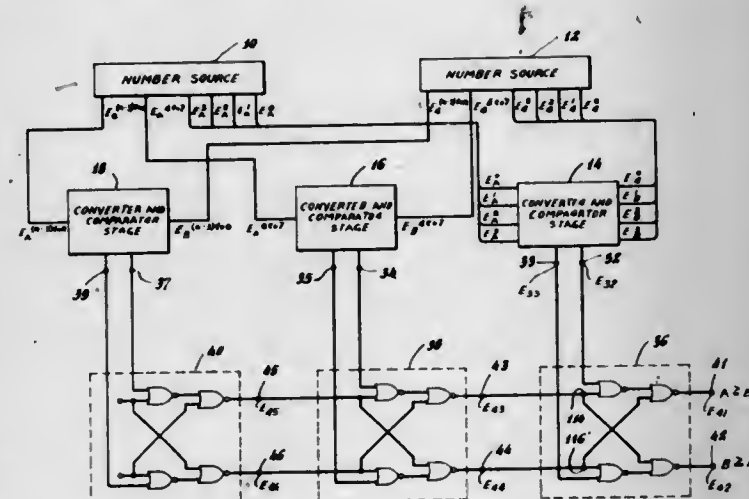
COMPARATOR CIRCUIT ARRANGEMENT

Larkin B. Scott, Fort Worth, Tex., assignor to The Perkin-Elmer Corporation, Norwalk, Conn.

Filed May 27, 1966, Ser. No. 553,568
Int. Cl. G06f 7/02

U.S. Cl. 340-146.2

6 Claims



Circuit means are provided for converting a first number *A* which occurs in digital form to a first plurality of analog representations and a second number *B* which occurs in digital form to a second plurality of analog representations; for comparing the amplitude of the numbers in analog form; for providing a plurality of digital representations indicative of these relative analog magnitudes; and for comparing the digital representations thereby providing an indication as to the relative magnitudes of the numbers *A* and *B*.

3,576,532

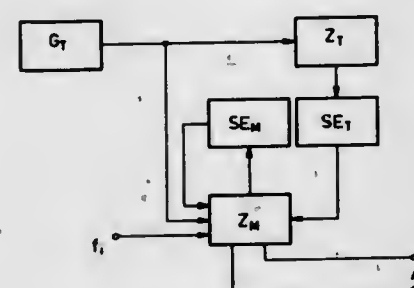
FREQUENCY COMPARATOR USING DIGITAL CIRCUITS

Gerhard Kaps, Hamburg, Germany, assignor to U.S. Philips Corporation, New York, N.Y.

Filed June 15, 1967, Ser. No. 646,335
Claims priority, application Germany, June 21, 1966, P39755
Int. Cl. G01r 23/10; H03d 13/00

U.S. Cl. 340-146.2

4 Claims



A ratio circuit for providing fine ratio control between a measured value and a desired value at a predetermined instant is provided with a comparison counter accumulating a measured value, and a plurality of selection devices each preset to a fractional proportion of the desired value. The presetting devices are driven by a common pulse source, all but the first presetting device coupled to the source via a frequency divider.

3,576,533

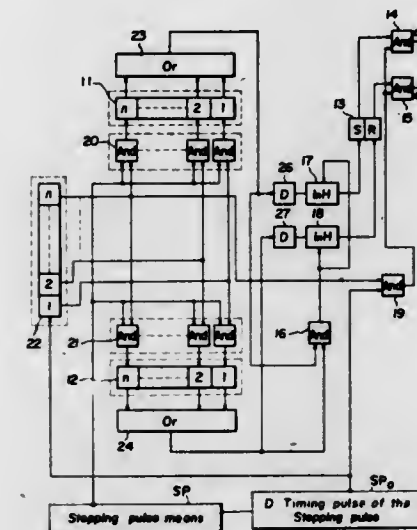
COMPARISON OF CONTENTS OF TWO REGISTERS

Akira Yokoyama, Kawasaki-shi, Japan, assignor to The General Corporation, Kawasaki-shi, Kanagawa-ken, Japan
Filed Sept. 5, 1967, Ser. No. 665,595

Claims priority, application Japan, Sept. 6, 1966, Sept. 17, 1966, June 10, 1967, 41-58454; 41-61096; 42-36780
Int. Cl. G06f 7/02

U.S. Cl. 340-146.2

10 Claims



A system in calculating devices for performing a comparison of the contents of two registers decided by priority of output between progress type registers, the numerical contents of the registers being fixed by the delay from standard timing of an output produced when constant periodic stepping pulses are supplied.

3,576,534

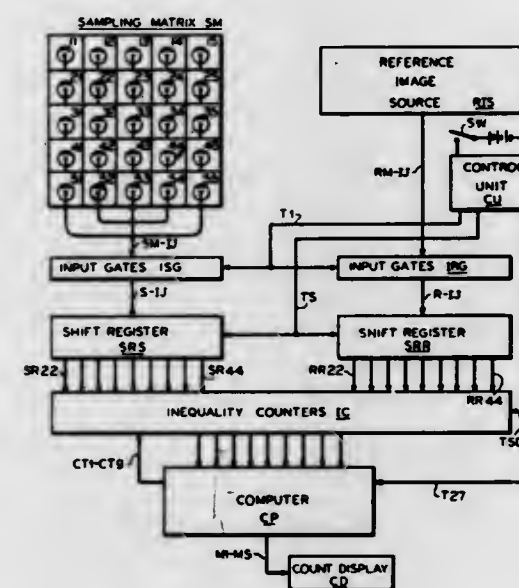
IMAGE CROSS CORRELATOR

Norbert Steinberger, New York, N.Y., assignor to Compuscan, Inc., Leonia, N.J.

Filed Aug. 11, 1969, Ser. No. 848,781
Int. Cl. G06k 9/04

U.S. Cl. 340-146.3

10 Claims



A device in which the states of the cells of the matrix of an unknown image are cross correlated with the states of the cells of the matrix of a reference image by comparing the binary values of the respective states as they are rotated in a pair of associated shift registers. The number of inequalities are accumulated for comparisons of the bit-values as they shift past different combinations of points in the shift register.

885 O.G.—31

3,576,535

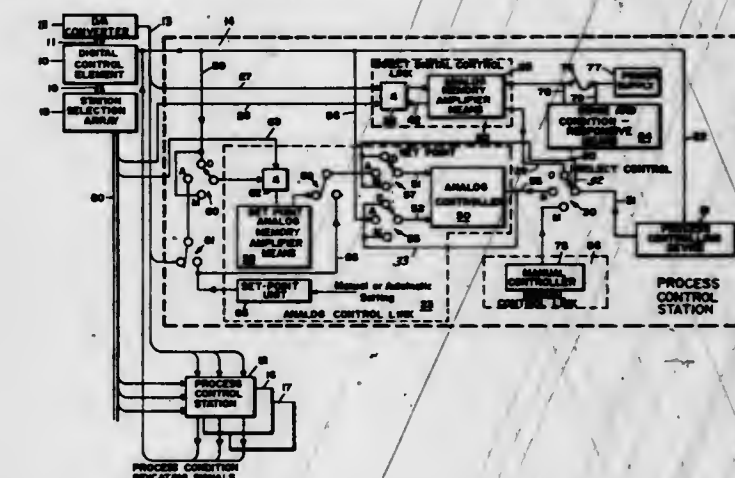
SUPERVISORY CONTROL SYSTEM

Anthony E. Turner, Phoenix, Ariz., assignor to Motorola Inc., Franklin Park, Ill.

Filed Mar. 7, 1968, Ser. No. 711,429

Int. Cl. H02h 9/00; H03f 1/02; H03i 1/14
U.S. Cl. 340-147

10 Claims



A supervisory control system having three independent control links each capable of independently supplying a signal to direct a process being controlled. A first one of the control links embodies direct digital control; the second, automatic or semiautomatic analog control; and the third, manual control. The first control link includes an analog memory amplifier-receiving analog signals from a central control unit and supplying an output analog control signal. The second control link includes a known type analog controller controllable by an analog memory amplifier which is preset during direct digital control. The condition-indicating signal of the controlled process is supplied as the variable input to the controller such that transfer between the first link and the second link is "bumpless." The process variable signals are returned to a digital control element which integrates the variables in the system. The analog control signal from a digital control element is multiplexed to a plurality of process control stations, each of which has three independent controllers. Address selection is provided.

3,576,536

ELECTRONIC CODE PERMUTATION LOCKING APPARATUS

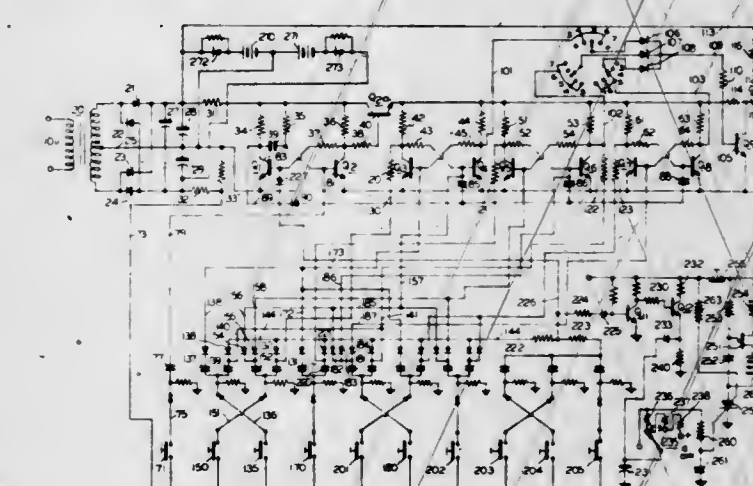
James G. Wolfe, 404 Branch Drive, Silver Spring, Md.

Filed Apr. 5, 1968, Ser. No. 719,022

Int. Cl. H04q 3/02

U.S. Cl. 340-147

16 Claims



This invention relates to electronic combination locks for operating an electromechanical apparatus, such as a door latch or ignition lock, when in its operative condition. It comprises a plurality of selectable operators digit switches which when operated in a predetermined sequence will switch the

lock to its operative condition. A number of bistable or on-off devices are provided with each connected to a predetermined one of the selectable operators switches for operation to a first condition upon operation of its associated operators switch in the sequence and to the other condition upon subsequent operation. A multiple switch and/or logic component is connected to the plurality of bistable devices for sensing a predetermined pattern of conditions from the bistable devices indicative of the last digit of the sequence. A further device is responsive to the sensing means, when sensing the predetermined pattern, to render the lock operative for operating the electromechanical device. Switching means is provided for supplying power to operate the lock, and it is a two position device for supplying power in one of its conditions of operation only, which condition is established by proper selection of one of the operators switches. Reset means are provided for interconnecting the on-off or bistable devices and switching means to interrupt the power when anyone of the operators switches is operated out of the sequence, and a timing circuit is provided similarly to cut off the power to the bistable devices through the switching means after a predetermined interval of time. If the lock has been actuated, power is established over a separate line to the load and once operated is thus not further affected by the switching means or timing circuit until released.

3,576,537

HAND ID SYSTEM

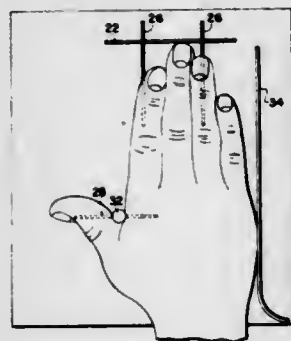
Richard H. Ernst, Foxboro, Mass., assignor to Polaroid Corporation, Cambridge, Mass.

Filed Dec. 5, 1968, Ser. No. 781,508

Int. Cl. G01b 5/00; G01d 7/10

U.S. Cl. 340-149

2 Claims



A spring-retained bar and pin are hand displaced to encode measurements of the hand. Comparison of the encoded measurements may be made with a coded ID card.

3,576,538

FINGER DIMENSION COMPARISON IDENTIFICATION SYSTEM

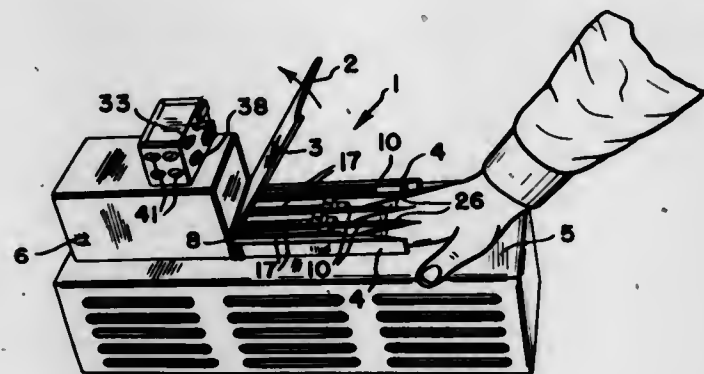
Robert P. Miller, Spring Valley, N.Y., assignor to Identification Corporation, Northvale, N.J.

Continuation-in-part of application Ser. No. 728,252, May 10, 1968, now abandoned. This application Apr. 14, 1969, Ser. No. 815,978

Int. Cl. H04q 3/00

U.S. Cl. 340-149

28 Claims



An identification system comprising a sensing device for sensing an outer dimension of an individual's fingers, a comparison mechanism for comparing the information regarding

the outer dimension of an individual's fingers as sensed by the sensing device with the same information of an individual's fingers as precalculated, and an indicator for indicating an identity or lack of identity between the sensed information of the individual's fingers with the precalculated information.

3,576,539

COUNTER CONTROLLER CREDIT VERIFICATION SYSTEM

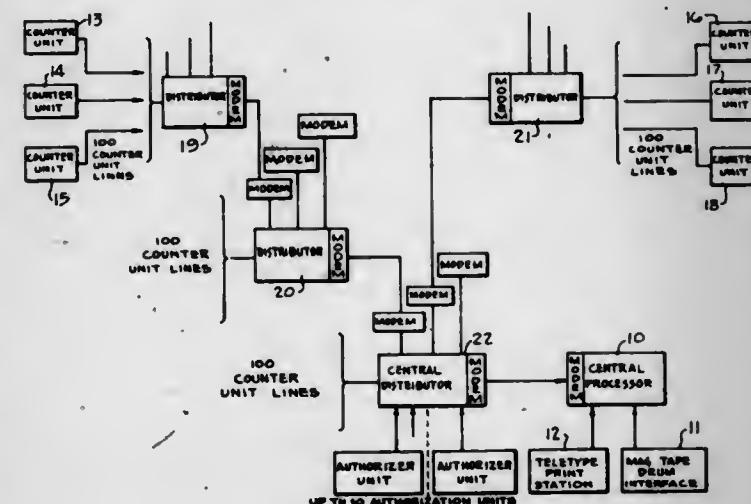
George H. Huber, Cinnaminson, and Kenrick O. Stephenson, Jr., Upper Montclair, N.J., assignors to Digital Data Systems Corp., Pennsauken, N.J.

Filed Oct. 21, 1968, Ser. No. 769,083

Int. Cl. H04q 5/00

U.S. Cl. 340-152

28 Claims



In a credit verification system a number of counter units at remote locations are connected to a central processor over two-wire lines. The central processor has a memory containing charge account numbers which are not to be honored. The counter units each have circuitry for encoding the charge account numbers serially-by-bit. The serial-by-bit codes are transmitted through distributor units to the central processor. The counter units have circuitry for embossing the sales slip only if a valid signal is received from the central processor. An authorizer unit, also connected to one of the distributors, is provided at the credit manager's desk. By use of the authorizer unit, charge account numbers can be entered into or deleted from the memory in the central processor and an inquiry can be made as to whether a number is in memory and the reason for its presence in memory.

3,576,540

PLURAL MACHINE TOOL AND PART HANDLING CONTROL SYSTEM

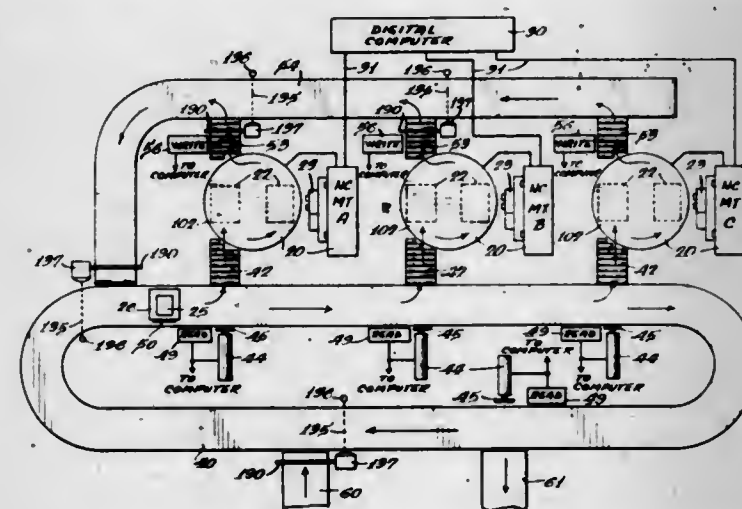
Donald G. Fair, Belvidere; Harold L. Baeverstad, Rockford, and Carl F. Erikson, Belvidere, Ill., assignors to Sundstrand Corporation

Filed Nov. 20, 1967, Ser. No. 684,235

Int. Cl. G06f 9/00; G06k 17/00

U.S. Cl. 340-172.5

18 Claims



A digital computer simultaneously controls the operation of plural machine tools and related apparatus, and coor-

dinates the movement of parts and tools between storage areas and each of the machine tools. The parts which are to be worked on are either randomly or selectively supplied to any particular machine tool. Tools used in common by the machine tools are stored in a central storage area, and are selectively conveyed to a particular machine tool in accordance with the operations to be performed on a part.

3,576,541

METHOD AND APPARATUS FOR DETECTING AND DIAGNOSING COMPUTER ERROR CONDITIONS

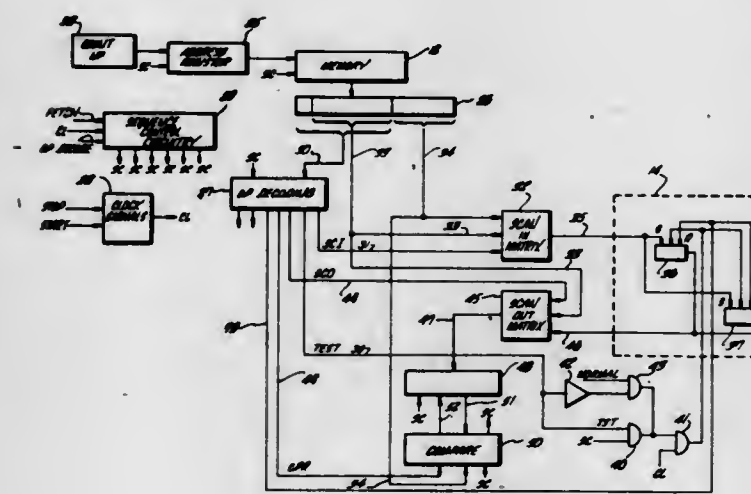
Kenneth C. Kwan, Hacienda Heights, and Jean A. DeBeule, Altadena, Calif., assignors to Burroughs Corporation, Detroit, Mich.

Filed Jan. 2, 1968, Ser. No. 694,897

Int. Cl. G06f 11/04

U.S. Cl. 340-172.5

39 Claims



Method and apparatus for detecting and diagnosing error conditions in any of a plurality of discrete units within a digital computer system effected by execution of test routines each of which is adapted to detect and diagnose errors in a selected one of the units. Each test routine comprises a plurality of test strings which are serially executed. Each test string includes one or more test cases and the strings are sequenced within the routine such that strings containing larger numbers of cases are executed prior to those having fewer numbers of cases. Execution of each test case within a string is effected by setting the unit to be tested to a predetermined initial state, feeding a clock pulse to the unit, determining the resultant state of the unit, and comparing the resultant state with a predetermined expected state. Failure of any such comparison indicates failure of a test case and the detection of an error. Failure of all test cases within a single test string indicates that a particular diagnosable error condition associated with that string is the error source. Failure of the first test case within a string is utilized to set a binary error element while the success of any subsequent test case within the string will reset the element. In one embodiment, each test case is repeatedly executed a predetermined number of times in order to detect intermittent errors.

3,576,542

PRIORITY CIRCUIT

Thomas D. Floyd, North Palm Beach, Fla., assignor to RCA Corporation

Filed Mar. 8, 1968, Ser. No. 711,618

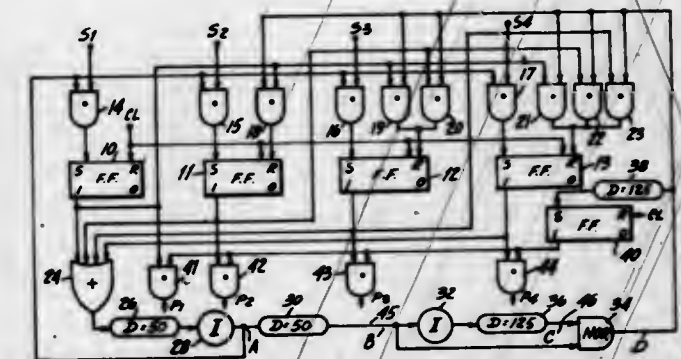
Int. Cl. G06f 9/18

U.S. Cl. 340-172.5

4 Claims

A register, the stages of which are adapted to be set by request for service signals of different priority. Within a first time interval after any stage is set, the lines carrying the request for service signals automatically are disconnected

from the respective stages of the register. Within a second time interval, all except one stage of the register automati-



cally are reset, that one stage corresponding to the one of the request for service signals of highest priority.

3,576,543

DATA HANDLING ARRANGEMENTS

Peter M. Melliar-Smith, Lewisham, England, assignor to English Electric Computers Limited, London, England

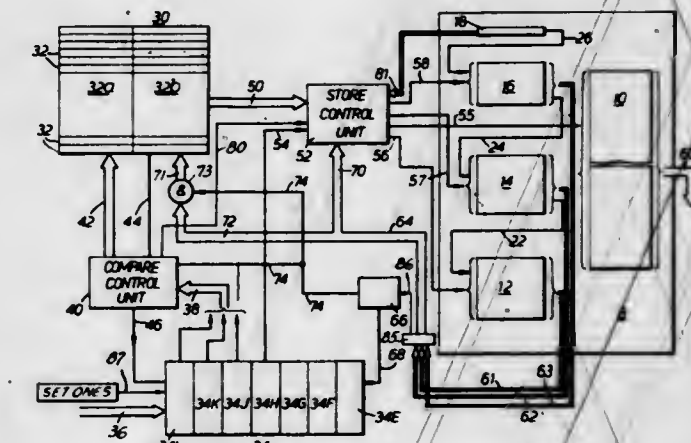
Filed May 2, 1968, Ser. No. 726,072

Claims priority, application Great Britain, May 3, 1967, Aug. 12, 1967, 20417/67; 37132/67

Int. Cl. G06f 7/20

U.S. Cl. 340-172.5

5 Claims



An information storage and addressing system is described in which word storage locations are grouped in sequence in pages. Page indications are also stored in addressable locations and a page location contains the address of the first word location of the respective page sequence. Similarly, the pages are grouped in segments and segment storage locations are provided, each of which contains the address of the earliest page location in a predetermined order within the segment. The segments are further grouped into zones, and zone indicative storage locations respectively specify addresses of segment storage locations. Finally, the zone storage locations may also be addressed. Thus, a full word location address consists of partial addresses respectively signifying zone, segment, page and word location addresses, each having a different degree of address significance with the several address parts arranged in the order of their respective address significance.

An address store is provided which may contain incomplete addresses within the hierarchy. For example, the addresses in the address store may specify the partial addresses of the zone, segment and page locations to make up a required complete address or they may consist only of permissible zone and segment partial combinations or even of some partial addresses only. The address store is first interrogated to match a required address with one of the entries in the address store. If this first attempt is unsuccessful, further attempts are made in succession, discarding the lower hierarchical orders of the required address in turn. If a match is found on one of these further interrogations, the permissi-

ble address recorded in the address store is used as a basis from which the required address is developed by successive accessing cycles of the different partial address storage locations within the main store, a new partial address from the full address specified as required being used to build up the final main store location address to which access is to be made available. Provision may also be made for overwriting a noncomplete address in the address store with a more complete address.

3,576,544

STORAGE PROTECTION SYSTEM

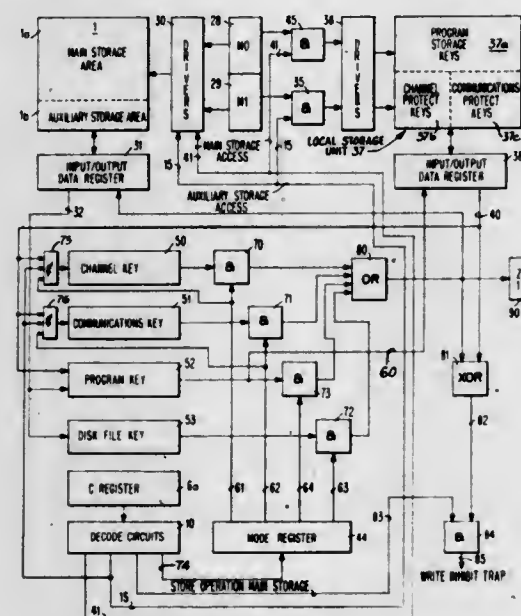
Humberto Cordero, Jr., Endicott; Edward G. Drimak, Johnson City, and Charles B. Perkins, Jr., Endicott, N.Y., assignors to International Business Machines Corporation, Armonk, N.Y.

Filed Oct. 18, 1968, Ser. No. 768,634

Int. Cl. G06b 7/02; G06f 11/10; G08b 29/00

U.S. Cl. 340-172.5

3 Claims



A system for protecting data in storage against inadvertent alteration. An access to main storage is preceded by an access to auxiliary storage. A portion of the auxiliary storage address is used to address a local storage unit for a protection key. When main storage is accessed, a portion of the main storage address is used to address the local storage unit for a storage key relating to the addressed area in main storage. The keys are compared and alteration of data at the main storage address is prevented if the keys do not match.

3,576,545

MEMORY FOR RECORDING A FUNCTION OF FOUR INDEPENDENT VARIABLES

Jean-Louis Meilleroux, Paris, France, assignor to CSF-Compagnie Generale De Telegraphie Sans Fil

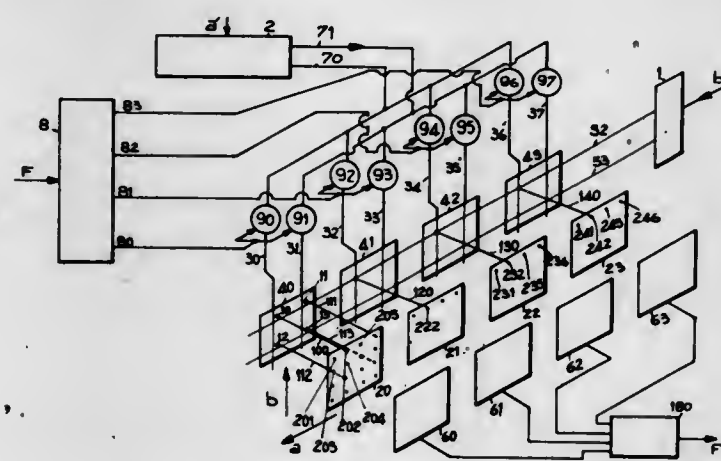
Filed May 11, 1967, Ser. No. 637,828

Claims priority, application France, May 26, 1966, 63,080

Int. Cl. G11c 13/04

U.S. Cl. 340-173

7 Claims



A storage system capable of recording on a photographic material information items corresponding to the values of a

function of four independent variables and capable of retrieving the stored values of said function for any predetermined combination of said variables. To this end the position of sources of light is controlled as a function of said variables and these positions are impressed on photographic plates.

3,576,546

PHOTOCHROMIC-PHOTOCONDUCTIVE MEMORY

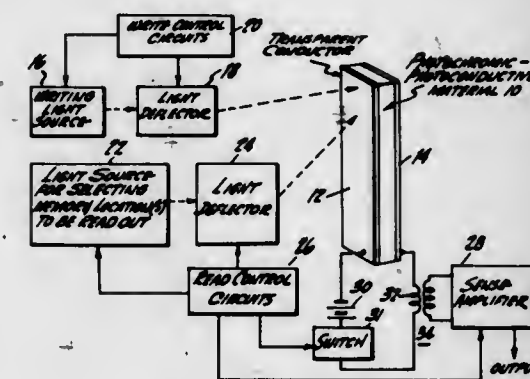
Philip M. Heyman, Cranbury, and Zoltan J. Kiss, Belle Mead, N.J., assignors to RCA Corporation

Filed June 3, 1968, Ser. No. 734,166

Int. Cl. G02f 1/36; G11c 13/04

U.S. Cl. 340-173

5 Claims



Memories employing a material whose photoconductivity can be altered by electromagnetic radiation such as light and which store their new value of photoconductivity upon removal of the light. Information is written into the memories optically and is read out of the memories by optical selection and electrical signal-sensing.

3,576,547

INTERFEROMETRIC READOUT OF ELECTRIC FIELDS

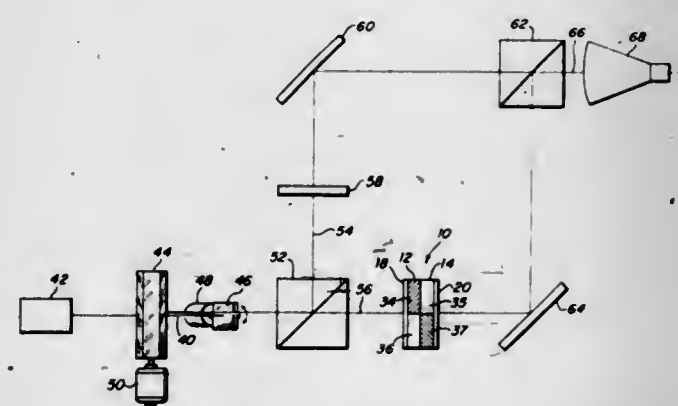
Ralph E. Aldrich, Woburn, Mass., assignor to Itek Corporation, Lexington, Mass.

Filed Nov. 22, 1968, Ser. No. 778,168

Int. Cl. G11c 11/42

U.S. Cl. 340-173

14 Claims



A method and apparatus are disclosed for interferometric readout of an information pattern stored by means of an electric field associated with a medium whose index of refraction varies as a function of an applied electric field by sensing the intensity of the interference pattern produced by the merging of a beam which has propagated through the medium with a beam which has not, both beams having been derived from a single beam of coherent radiation.

3,576,548

FIXED MEMORY SYSTEM USING FIELD EFFECT DEVICES

George A. Watson, 588 Glenrose, Orange, Calif.

Filed Jan. 6, 1969, Ser. No. 789,226

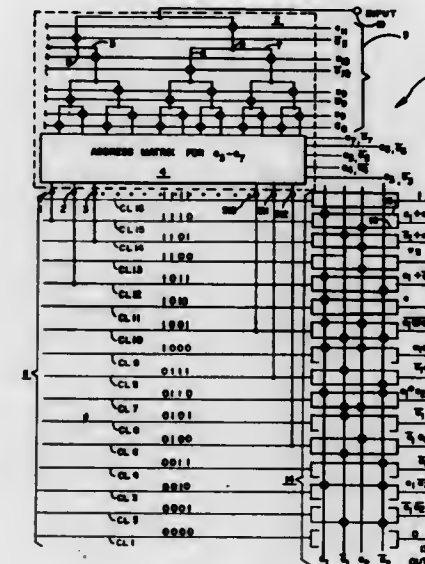
Int. Cl. G11c 7/00, 17/00

U.S. Cl. 340-173

6 Claims

Address selection matrix terminals in a fixed memory encode n bits of data per terminal by connecting each terminal

to one of 2^n coding lines. Each coding line corresponds to a specific n bit code, as well as to a logical function of the address bits not used in the address selection matrix. The multi-



ple coding lines reduce the size of the address selection matrix by a factor of n .

Control means including field effect transistors representing the functions of the remaining address bits electrically connect the coding lines to the output terminal.

3,576,549

SEMICONDUCTOR DEVICE, METHOD, AND MEMORY ARRAY

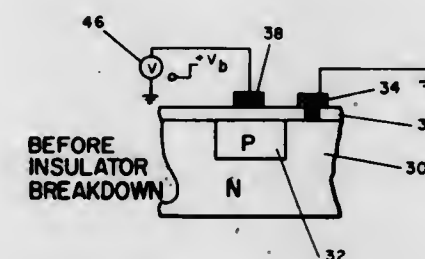
Martin S. Hess, Hopewell Junction, and Walter F. Krolkowski, Poughkeepsie, N.Y., assignors to Cogar Corporation, Utica, N.Y.

Filed Apr. 14, 1969, Ser. No. 815,971

Int. Cl. G11c 17/00, 7/00, 11/34

U.S. Cl. 340-173SP

36 Claims



This disclosure relates to a semiconductor device which has a first electrical state prior to the application of a particular voltage to at least one conductor thereof and a second, different, irreversible electrical state after the voltage was applied to the selected conductor. A method of forming an electrical contact is also disclosed which is achieved by breaking down a portion of the insulator of the semiconductor device by the application of a voltage to a conductor located on the insulator thereby permitting electrical contact to the semiconductor by the conductor. Additionally, a memory array is disclosed which permits a write-once, read-only function or operation by using an insulator breakdown technique to change semiconductor devices of the array from a first electrical state to a second, irreversible and different electrical state.

3,576,550

ELECTROCHEMICAL RECORDING DEVICE

Donald James Behymer, 3201 43rd Ave. So., Minneapolis, Minn.

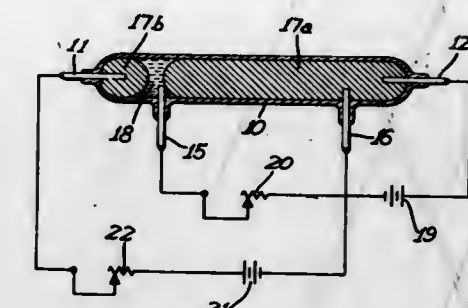
Filed June 9, 1969, Ser. No. 831,442

Int. Cl. G11c 13/02

U.S. Cl. 340-173

4 Claims

An electromechanical recording device having plural elec-



trodes and a moving electrolytic bubble in a capillary tube that stops acting before reaching an irreversible condition and a comparing recording circuit using it.

3,576,551

REPAIR OF THIN-FILM STRUCTURE SUCH AS CRYOELECTRIC MEMORY

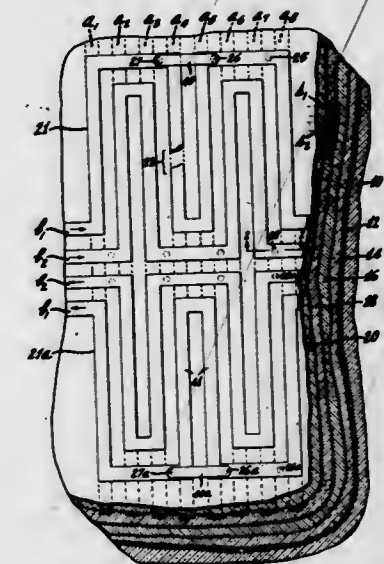
Robert A. Gange, Belle Mead, N.J., assignor to RCA Corporation

Filed Nov. 4, 1968, Ser. No. 773,165

Int. Cl. G11c 11/44

U.S. Cl. 340-173.1

10 Claims



Insulated riser conductors extend from the substrate to the outermost leads (those which are exposed) of a cryoelectric memory. A break in one of these leads may be repaired by soldering or otherwise connecting a wire or other conductor between two riser conductors.

3,576,552

CYLINDRICAL MAGNETIC MEMORY ELEMENT HAVING PLURAL CONCENTRIC MAGNETIC LAYERS SEPARATED BY A NONMAGNETIC BARRIER LAYER

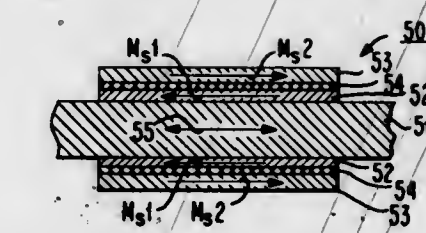
Albert W. Vinal, Owego, N.Y., assignor to International Business Machines Corporation, Armonk, N.Y.

Filed Dec. 26, 1967, Ser. No. 693,409

Int. Cl. G11c 11/14

U.S. Cl. 340-174

10 Claims



A cylindrical magnetic film memory element. Plural concentric film layers are deposited on a cylindrical substrate.

The substrate is either a solid conductive cylinder such as a wire or rod, or is a composite cylinder comprising a conductive film deposited on a solid or hollow nonconductive tube support. The magnetic films are either all anisotropic or mixed anisotropic and isotropic. In one embodiment, the anisotropic films have a closed hard axis and the easy or preferred axis of magnetization is parallel with the longitudinal axis of the substrate and the quiescent saturation magnetization within the film layers are disposed in an antiparallel longitudinal manner. In a second embodiment, dual anisotropic films have a preferred easy axis orientation circumferentially directed, thereby giving a closed easy axis.

3,576,553

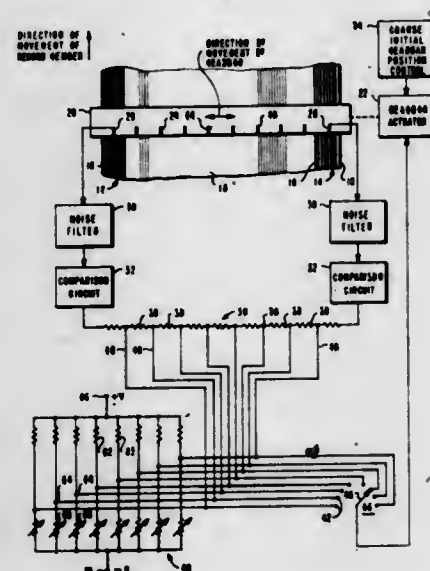
DATA TRANSDUCER POSITIONING SERVO UTILIZING COMPENSATION NETWORK AND PHASE-DISPLACED SERVO SIGNAL PAIRS OF LIKE FREQUENCY

Friedrich R. Hertrich, Boulder, Colo., assignor to International Business Machines Corporation, Armonk, N.Y.
Filed Apr. 29, 1968, Ser. No. 724,996

Int. Cl. G11b 21/10

U.S. Cl. 340-174.1

19 Claims



A system is provided for aligning data transducers carried by a common mechanical element with data tracks on a movable record member. Servo transducers at the opposite ends of the common mechanical element sense adjacent pairs of servo track signals on the record member to provide error signals. The error signals are selectively attenuated by a network of resistors to compensate for variations due to hygroscopic record member expansion and the like, while biasing voltages imposed on the various terminals of the resistor network by a plurality of bridge circuits compensate for mislocations of the data transducers on the mechanical element. Problems due to noise, variations in flying height and the like may be eliminated by an arrangement in which the adjacent servo track signals are of like frequency but different phase, the phase of both signals reversing at intervals along the length of the servo tracks.

3,576,554

PASSIVE TELEMETRY SYSTEM

Alfred J. Temps, Jr., Massapequa, and George D. Summers, Stony Brook, N.Y., assignors to Fairchild Hiller Corporation, Farmingdale, Long Island, N.Y.

Filed Nov. 30, 1967, Ser. No. 687,067

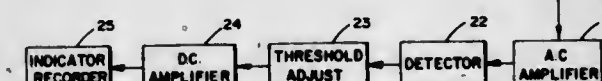
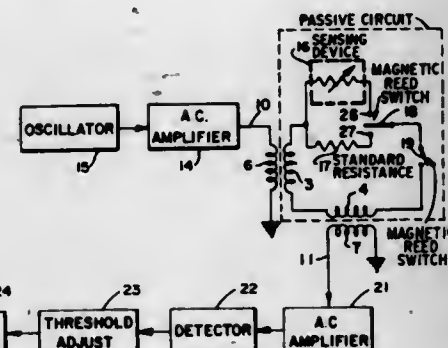
Int. Cl. G08c 19/04

U.S. Cl. 340-177

13 Claims

A telemetry system having a physically separate passive sensing circuit including a first magnetic coil which is coupled to the power source for supplying electrical current, a sensing device for modulating the electrical current in accordance with the variable sensed, and a second magnetic

coil, for coupling the modulated current to the output device, the first and second magnetic coils being adjacent each other



and oriented at substantially right angles in order to avoid interference between their respective magnetic fields.

3,576,555

METER DIAL EXTENSION SYSTEM

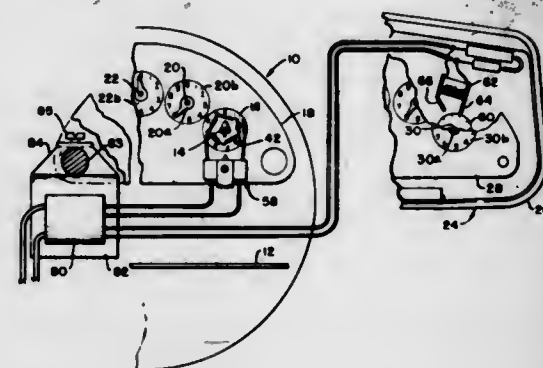
Karl Struck, Springfield, Ill., assignor to Sangamo Electric Company, Springfield, Ill.

Filed Sept. 12, 1967, Ser. No. 667,214

Int. Cl. G08c 19/16

U.S. Cl. 340-203

16 Claims



An arrangement in which a transmitter is mounted in a kilowatt hour or other meter so as to operate a remotely located register, the transmitter comprising a step down transformer having its secondary winding connected to the solenoid of a stepping motor comprising a disc mounted on the units shaft of the register and having a series of alternately arranged north and south poles spaced about its periphery. The transmitter also includes a switch in the solenoid circuit which is operated by a cam mounted on the units recording pintle of the meter so as to reversely connect a diode into the solenoid circuit each time the units recording pintle is turned one integer and provides a direct current signal to the solenoid which reverses, the pole pieces of which therefore reverse in polarity for each kilowatt hour recorded by the meter, the two pole pieces of the solenoid spanning one and a half or two and a half poles along the periphery of the stepping motor disc so that the disc rotates the distance between each pole thereupon in response to each reversal of the direct current signal to the solenoid.

3,576,556

FLAME DETECTOR

John Sellors, Jr., Shaker Heights, Ohio, assignor to Pyronics, Inc., Cleveland, Ohio

Continuation-in-part of application Ser. No. 733,910, June 3, 1968, now abandoned. This application May 16, 1969, Ser. No. 825,381

Int. Cl. G08b 17/00

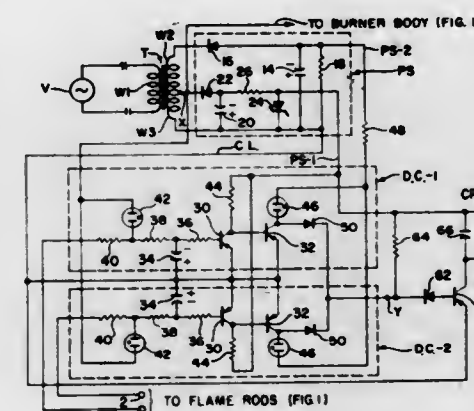
U.S. Cl. 340-228

23 Claims

A flame detector is disclosed herein for detecting whether a flame is emitted from a burner. The detector includes a sensor, such as a flame rod, and an electrical circuit for

providing an indication as to whether a flame is detected. Circuitry is also disclosed for checking the detector circuitry

passing radiation through both the monitored fluid and a reference fluid and comparing the intensity of the radiation emerging from each. When the relative opacity or trans-



for component malfunctions or actual flame conditions during a safe start time delay period.

3,576,557

ARRANGEMENT FOR CONTROLLING MARINE WARNING LIGHTS AS A FUNCTION OF FOG DENSITY

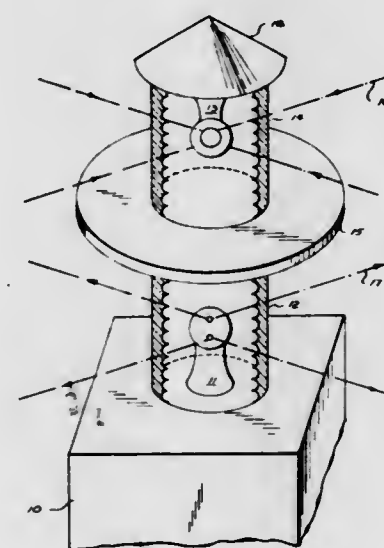
Frank Fruengel, 400, Suldorfer Landstrasse, 2 Hamburg 56 Rissen, Germany

Filed Aug. 8, 1968, Ser. No. 751,136

Int. Cl. G08h 21/00

U.S. Cl. 340-236

6 Claims



An electronic arrangement for automatically varying the characteristics of warning lights, at sea, independent of the prevailing fog. A platform or floating dock located on the surface of the water supports a warning light which is transmitted through Fresnel lenses. A receiver also located on the floating dock receives a portion of the signal reflected by the surrounding air particles. Under heavy fog conditions greater penetration of the warning light is accomplished by increasing the time duration of the flashing signal, rather than its amplitude. Automatic switching to a greater signal duration is realized with the receiver which receives a larger signal from the backscattered light during heavy fog conditions. When the received signal exceeds a predetermined threshold value, a relay is actuated and switches auxiliary circuit components for increasing the time interval of the transmitted signal.

3,576,558

OPACITY COMPARISON APPARATUS AND METHOD

Kenneth L. Devries, Salt Lake City, Utah, assignor to University of Utah

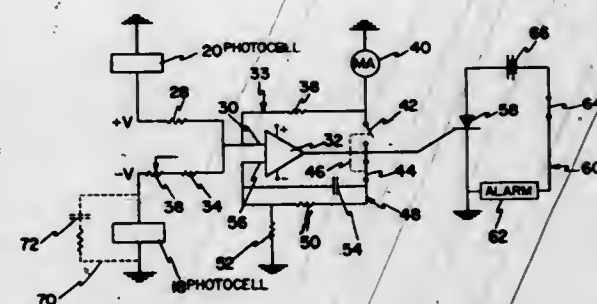
Filed May 14, 1968, Ser. No. 729,104

Int. Cl. G08b 21/00

U.S. Cl. 340-236

4 Claims

An apparatus and method for detecting the reduction of light transmitting capability of a fluid being monitored by



parency of the monitored fluid reaches a predetermined level, a signal is generated which is amplified and converted to a detectable warning.

3,576,559

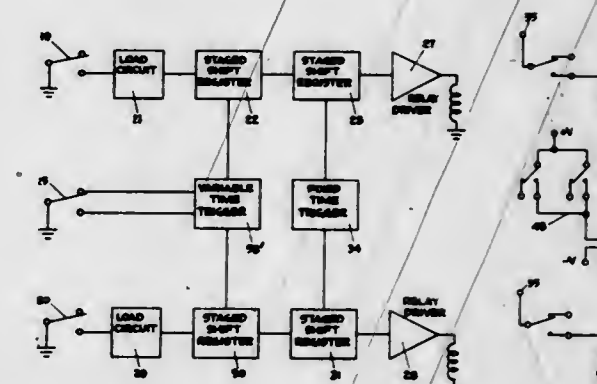
CONTROL APPARATUS FOR LAUNDRY SYSTEM

Roland W. Gerstenberger, Fort Lauderdale, Fla., assignor to Jensen Machinery, Inc., Fort Lauderdale, Fla.
Continuation-in-part of application Ser. No. 707,723, Feb. 23, 1968, now abandoned. This application Jan. 19, 1970, Ser. No. 3,591

Int. Cl. G08b 21/00; B65g 43/00

U.S. Cl. 340-259

18 Claims



A control apparatus for laundry equipment which is actuated at the beginning of the cycle to indicate a particular characteristic of the workpiece; the apparatus stores this information in a memory unit during the cycle and feeds it out in the form of a signal when the workpiece completes its cycle.

3,576,560

ELECTRONIC THREAD GUARD

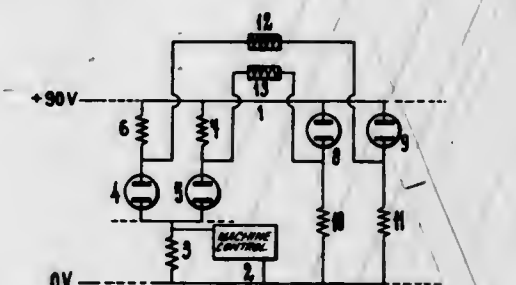
Geert Jan Vermeulen, of Deurne, Netherlands, assignor to N. V. Machinefabriek L. te Strake, Deurne, Netherlands
Filed Aug. 26, 1968, Ser. No. 755,346

Claims priority, application Netherlands, Sept. 12, 1967, 67/2480

Int. Cl. G08b 19/00

U.S. Cl. 340-259

6 Claims



An electronic thread guard for guarding a plurality of threads or groups of threads comprising a first set of glow discharge lamps, there being one lamp for each thread or

thread group to be guarded, and a series resistor connected with the set between two supply voltage leads. A second set of lamps, there being one lamp with a voltage dropping resistor for each thread or thread group to be guarded, is connected between the two supply voltage leads. A light-dependent resistor included for each thread or thread group is illuminated or obscured in response to tensioning or slackening, respectively, of the corresponding thread or thread group and is connected to a corresponding one of the lamps in the first set and to a corresponding lamp in the second set. In response to the occurrence of a break in one of the threads or thread groups, the corresponding glow discharge lamp in the first set is ignited, and ignition of the other lamps in that set is prevented. The voltage across or current through the series resistor is utilized to stop the machine, and each lamp in the second set is ignited independently in response to slackening of the corresponding thread or thread group.

3,576,561

DIGITAL-ANALOGUE CONVERTERS

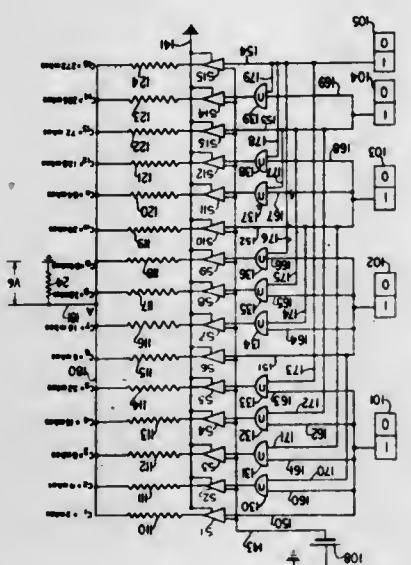
Gabriel Henri Leon Dureau, Le Perreux Sur Marne, France, assignor to Societe Alsacienne de Constructions Atomiques de Telecommunications et d'Electronique Alcatel, Mulhouse, Haut Rhin, France

Claims priority, application France, Aug. 1, 1961, 869,759
Continuation-in-part of application Ser. No. 212,355, July 25, 1962, now abandoned. This application Jan. 23, 1967, Ser. No. 610,879

Int. Cl. H03k 13/04

U.S. Cl. 340-347

7 Claims



A converter of the digital-analogue-type for producing analogue voltages having a predetermined nonlinear characteristic in which digital switches operated in binary coded format provide signals for selectively connecting different ones of a plurality of weighted resistances to a reference voltage source in response to signals from the several digital switches and to signals from the outputs of logic AND elements each having an input connected to a digital switch of a given rank and an input connected to a digital switch of higher rank, there being one resistance for each digital switch and one for each logic AND circuit. The output ends of the weighted resistances are connected to a common output terminal to provide output voltages of a predetermined nonlinear characteristic which may be utilized as such or connected to a comparator for feeding signals back to the digital switches for translating nonlinear voltages to be measured into a digital indication. In one embodiment, the number of logic AND elements associated with each digital switch corresponds to the number of digital switches of a higher rank whereby a logic AND element of each switch except that of highest rank is connected to each of the switches of higher rank.

3,576,562
DECODING ARRANGEMENT FOR BINARY CODE
DECIMAL GROUPS

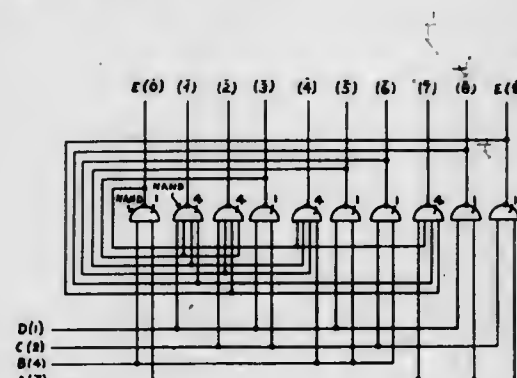
Boris Sakic, Wettingen, Switzerland, assignor to Aktiengesellschaft Brown, Boveri & Cie, Baden, Switzerland
Filed Mar. 3, 1967, Ser. No. 620,519

Claims priority, application Switzerland, Mar. 23, 1966, 4199/66

Int. Cl. H03k 13/243

U.S. Cl. 340-347

4 Claims



A decoder for decimal-grouped binary codes has four input channels corresponding to the binary positions for parallel feeding in of signals to be decoded and 10 output channels corresponding to the decimal digits for transmitting the decoded signals. Logic circuits, all of the same type, i.e. either NAND or NOR gates, are provided respectively for each of the 10 output channels.

3,576,563
RAILROAD SIGNAL HAVING LIGHT PIPING FROM
SOURCE MOUNTED AN EXTERIOR OF REFLECTOR
CONE

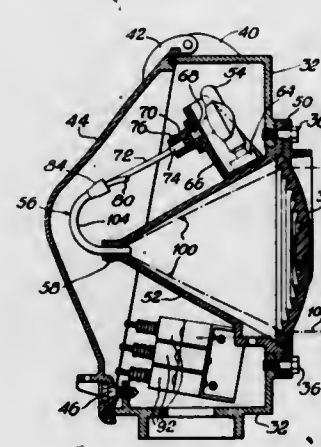
Harrison A. Scott, and James E. Moe, Minneapolis, Minn., assignors to Railroad Accessories Corporation, Minneapolis, Minn.

Filed May 20, 1968, Ser. No. 730,482

Int. Cl. G08b 5/36

U.S. Cl. 340-380

9 Claims



A railroad signal has separate light sources for each of the separate colors employed, such as red, yellow, and green or other standard colors. The light sources are located away from the external lens of the signal unit, and are housed deep within the metal casing in order to protect them from vandalism. Yet no mechanical motion at the light source is required to switch the signal from one color to another; instead the switching is done electrically by means of relays in the conventional control circuitry which select one of the alternative light sources for energization. The light from all three lamps, red, yellow and green, is brought together by fiber optic bundles so that it emerges through a single external lens in an unusually bright, concentrated beam which is aimed down the right of way. A sighting tube is provided, as is test apparatus for adjusting the sighting tube to achieve precise alignment of the signal relative to the direction of the railroad track.

3,576,564
RADAR PROCESSOR HAVING ADAPTIVE CLUTTER
REJECTION

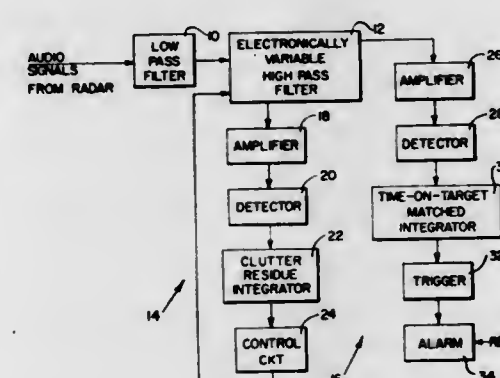
Aaron A. Galvin, Lexington, Mass., assignor to Aerospace Research, Inc., Boston, Mass.

Filed Dec. 12, 1968, Ser. No. 783,289

Int. Cl. G01s 9/42

U.S. Cl. 343-7.7

12 Claims



A radar signal processing system wherein clutter signals which are continually varying in amplitude and spectral distribution are cancelled in an optimum manner by means adaptive to particular clutter conditions, thereby to permit effective target detection and low false alarm rate operation in the presence of such clutter. An electronically variable high pass filter is employed, the response of which automatically adjusts to input clutter conditions to provide the required amount of clutter cancellation while at the same time affording optimal target detection.

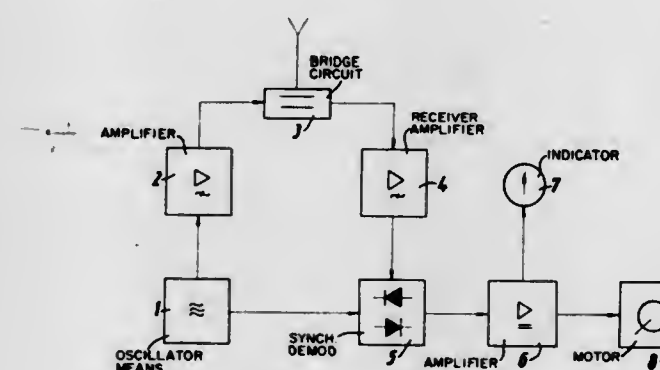
3,576,565
ARRANGEMENT FOR MEASURING SHORT DISTANCES
HansRichard Schulz, Villingen/Black Forest, Germany, assignor to Saba Schwarzwälder Apparate-Bau-Anstalt August Schwer Schne GmbH, Villingen/Black Forest, Germany

Filed Oct. 23, 1968, Ser. No. 769,867

Int. Cl. G01s 9/23

U.S. Cl. 343-14

9 Claims



A carrier signal is applied to the primary of a transformer whose secondary is center tapped. One end of the secondary winding is connected to an antenna establishing an electric or magnetic field. The other end of the secondary winding is connected to a dummy antenna which compensates for the first antenna impedance before the field established by the antenna is distorted by the target to which the distance is to be measured. When the target enters the field a signal appears at the center tap of the secondary which is amplified, demodulated by a synchronous demodulator keyed by the carrier, again amplified and fed either to an indicating instrument or a motor which serves to rebalance the bridge and whose shaft serves as an indication of the distance to the object. The first above-mentioned amplification is accomplished by a variable gain receiver amplifier, so that the output indication is a linear function of distance to the target.

3,576,566
CLOSED LOOP ANTENNA REFLECTOR SUPPORTING
STRUCTURE

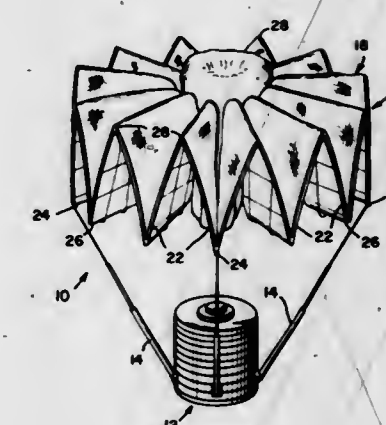
John H. Cover, Jr., Woodland Hills; Allister F. Fraser, Jr., Torrance, and Bruno R. Gaspari, Los Angeles, Calif., assignors to Hughes Aircraft Company, Culver City, Calif.

Filed Oct. 31, 1966, Ser. No. 590,561

Int. Cl. H01q 15/20

U.S. Cl. 343-705

12 Claims



The supporting structure is a closed loop, such as a torus, and is useful for supporting a focusing, transmitting or reflecting mechanism, such as the mesh of an antenna. A series of arcuate segments are hinged to one another so that the whole structure may be folded in a truncated ogival configuration for stowage within a small volume, such as a vehicle shroud. Upon deployment, the segments unfold about the hinges to form the closed loop which acts as a closed beam and which tends to be self-stabilizing. A stabilized geometrical relationship also exists between the mesh and the loop. Such stabilization acts against displacement and deformation forces. Elongating struts connect the loop to a space vehicle.

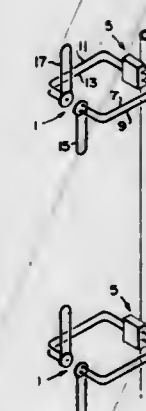
3,576,567
CIRCULARLY POLARIZED BROADCAST ANTENNA
Edward H. Shively, Raymond, Maine

Filed July 11, 1967, Ser. No. 652,458

Int. Cl. H01q 11/12, 1/00

U.S. Cl. 343-704

10 Claims



A circularly polarized broadcast antenna comprising a pair of conducting arms having portions forming an interrupted loop polarized in a first plane and terminating in ends diverging in different directions from the first plane to form a dipole.

3,576,568
WARNING DEVICE FOR A BRAKING SPLIT SYSTEM
Rene Thirion, Paris, France, assignor to Societe Anonyme DBA

Filed Mar. 7, 1968, Ser. No. 711,396

Claims priority, application France, May 17, 1967, 993110

Int. Cl. B60q 1/44; F16d 66/00; H01h 35/24

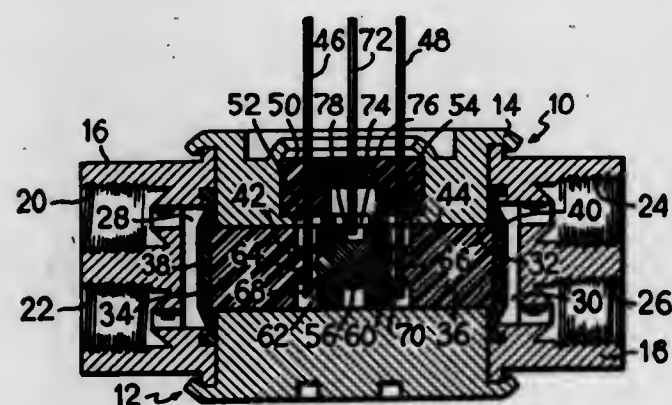
U.S. Cl. 340-60

3 Claims

A combination stop warning switch and brake system failure indicator switch is disclosed for use on automotive

vehicles having split braking systems. When the brakes function normally, the switch actuates the vehicle's stop warning system when the vehicle's brakes are applied. However, if a malfunction causes the pressure in one of the brake systems

a computer site of a data processing system. The scheme involves the addition of a logical circuit, termed the Synchronous Timing Assembly, to an already existing Line Terminal. The added Synchronous Timing Assembly resynchronizes the Line Terminal generated receive clock signal each time two incoming information signals, such as a



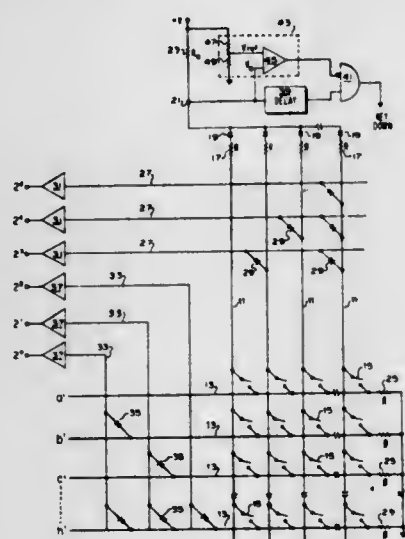
to exceed the pressure in the other system by more than a predetermined amount during a brake application, the switch actuates both the stop warning system and a warning device in the vehicle's operator's compartment.

3,576,569 PLURAL MATRIX KEYBOARD WITH ELECTRICAL INTERLOCK CIRCUIT

Robert E. Watson, Loveland, Colo., assignor to Hewlett-Packard Company, Palo Alto, Calif.
Filed Oct. 2, 1968, Ser. No. 764,411
Int. Cl. H04q 3/00

U.S. Cl. 340-166

6 Claims



The key switches of a keyboard are connected between the row and column conductors in a switching matrix. Each key when operated generates a unique six-bit binary code. The three most significant bits are produced by a diode encoding matrix formed with the column conductors, and the three least significant bits are produced by a diode encoding matrix formed with the row conductors. A voltage developed across a resistor in the keyboard voltage supply circuit produces a "key down" signal whenever a single key is operated. An electrical interlock circuit threshold detects the voltage across the resistor and inhibits the "key down" signal when two or more keys are operated simultaneously.

3,576,570 SYNCHRONOUS TIMING SCHEME FOR A DATA PROCESSING SYSTEM

Howard L. Meier, Prescott, Wis., assignor to Sperry Rand Corporation, New York, N.Y.

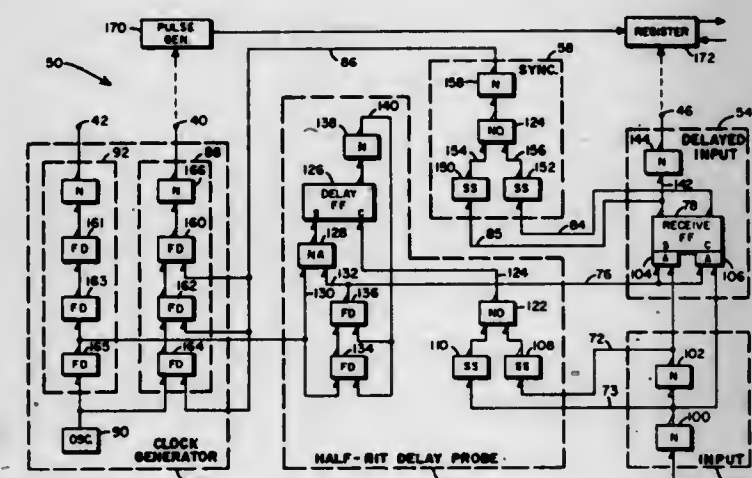
Filed Dec. 12, 1968, Ser. No. 783,261

Int. Cl. G06f 3/04

U.S. Cl. 340-172.5

5 Claims

A scheme for synchronizing the transfer of information signals between a Line Terminal and an associated Modem at



Mark signal and a Space signal that are received sequentially from the Modem, differ in state. Additionally, the Synchronous Timing Assembly enables the Line Terminal to discriminate between valid and invalid information signals by dropping out all information signals not meeting established criteria.

3,576,571 MEMORY CIRCUIT USING STORAGE CAPACITANCE AND FIELD EFFECT DEVICES

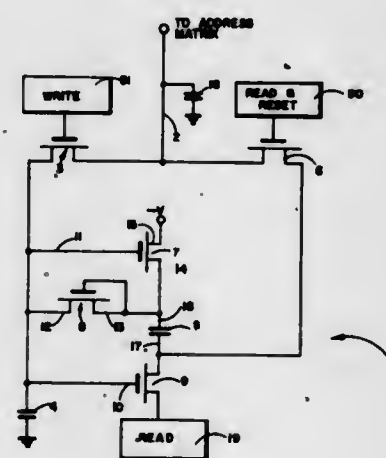
Robert K. Booher, Mission Viejo, Calif., assignor to North American Rockwell Corporation

Filed Jan. 7, 1969, Ser. No. 789,442

Int. Cl. G11c 11/24, 11/40

U.S. Cl. 340-173R

9 Claims



The memory circuit includes a first capacitor that is charged through an address matrix to a potential representing a logical state during the write period of a memory cycle, and a second capacitor which is conditionally charged as a function of that logical state.

The second capacitor conditionally provides charge to the first capacitor periodically to maintain the logical state of the first capacitor until it is altered during a subsequent write period.

A MOS device is responsive to the charge on the first capacitor for driving an output terminal connected to one of its electrodes to a potential representing the logical state. The second capacitor has an electrode connected through a MOS switching device to the ungrounded side of the first capacitor for increasing the potential on the first capacitor and thereby increasing the potential to which the output terminal is driven.

3,576,572 VOLTAGE-STABLE NEGATIVE RESISTANCE DEVICE

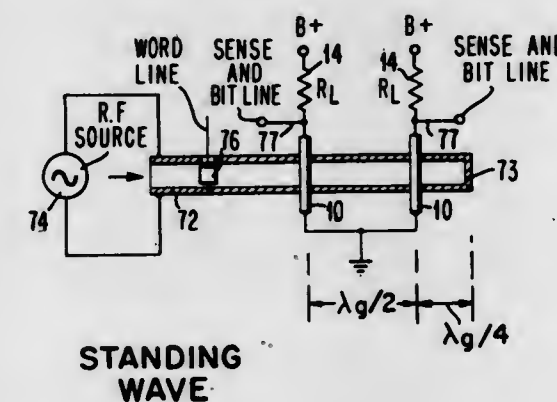
Norman Braslau, Katonah, N.Y., assignor to International Business Machines Corporation, Armonk, N.Y.

Filed July 15, 1968, Ser. No. 744,952

Int. Cl. G11c 11/36; H03k 3/31

U.S. Cl. 340-173

16 Claims



A voltage-stable, negative resistance device is provided that comprises a bulk material which is subjected to both a selected Radio Frequency electric field and a DC bias electric field. A pair of such devices provides a memory when mounted in a waveguide that is subjected to either a standing wave field or a traveling wave field.

3,576,573 SYSTEM FOR SELECTING A SUBSTITUTE ELECTRICALLY OPERATED ELEMENT

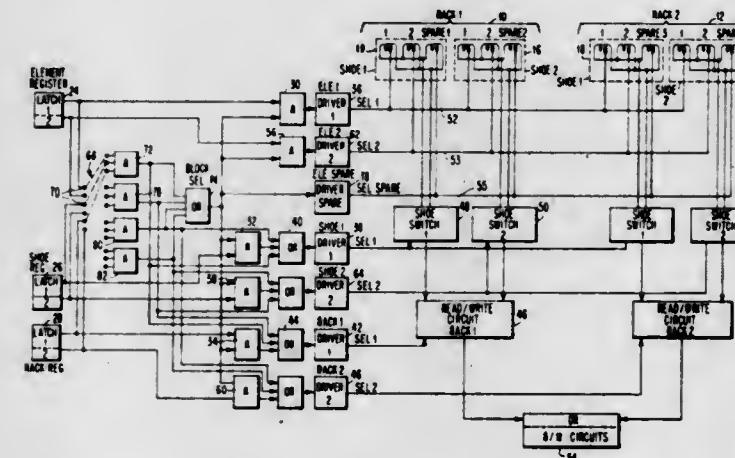
Charles V. Symons, San Jose, Calif., assignor to International Business Machines Corporation, Armonk, N.Y.

Filed Sept. 23, 1968, Ser. No. 761,522

Int. Cl. G11b 5/46

U.S. Cl. 340-174.1B

1 Claim



A system for selecting an electrical element of a group of like elements includes a sensor that responds to a combination of signals, such signals being directed to energizing a selected element. In the event that the selected element becomes defective or nonoperative, then a logic system is adjusted to change the signal combination to the sensor, so as to block energization of such defective element, and to substitute another like operative element.

3,576,574 LIGHT PEN TRACKING UNIT WITH ALTERNATIVE TRACKING PATTERNS

Herbert B. Baskin, Moberg Lake, and Robert H. Rieker, Ossining, N.Y., assignors to International Business Machines Corporation, Armonk, N.Y.

Filed Jan. 15, 1968, Ser. No. 697,864

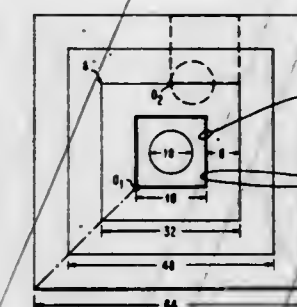
Int. Cl. G08b 23/00; H01j 29/70

U.S. Cl. 340-324

11 Claims

Apparatus for use in conjunction with a CRT DISPLAY and LIGHT PEN for changing tracking modes when light pen

motion is detected. It also relates to such apparatus for dynamically altering the tracking pattern dependent upon the



detected speed of light pen travel. That is, the size of the tracking pattern may vary depending on the speed of the light pen.

3,576,575 BINARY CODED DIGITAL TO ANALOG CONVERTER

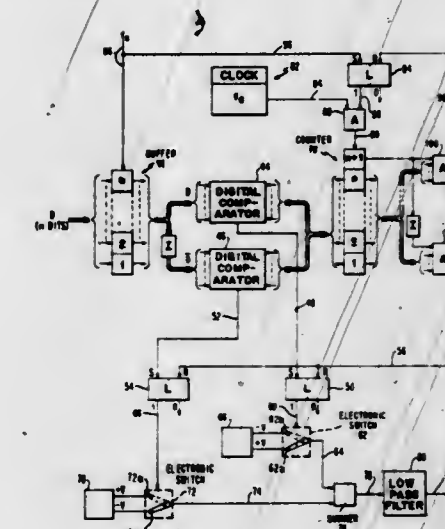
George A. Hellwarth, Deerfield Beach, Fla., and Gardner D. Jones, Jr., Raleigh, N.C., assignors to International Business Machines Corporation, Armonk, N.Y.

Filed Nov. 21, 1968, Ser. No. 777,789

Int. Cl. H03k 13/02

U.S. Cl. 340-347DA

8 Claims



Apparatus for converting binary coded digital signals into analog signals, in which the initial digital signal is at first converted into a pulse whose duration is representative of said digital signal, then integrated. Also disclosed are some improvements allowing harmonics to be reduced, more particularly by combining a first pulse whose duration is representative of the binary value of the digital signal with a second pulse whose duration is representative of the binary complement of the value of said digital signal.

ERRATA

For Classes 343-7.7 thru 343-704 see:
Patent Nos. 3,576,564 thru 3,576,567

3,576,576 CONCEALED WINDSHIELD BROADBAND ANTENNA

William K. Jensen, Royal Oak, Mich., assignor to General Motors Corporation, Detroit, Mich.

Filed Oct. 31, 1968, Ser. No. 772,182

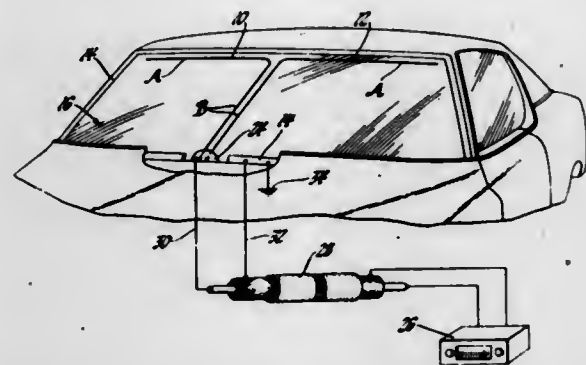
Int. Cl. H01q 1/32

U.S. Cl. 343-712

6 Claims

An AM-FM antenna for vehicular radio receivers comprising a pair of L-shaped fine wire conductors disposed between the laminates of a windshield in reversely symmetrical relation and connected to a receiver by way of a coaxial lead.

Spacings between the conductors and the vehicle body portion bounding the windshield are chosen to capacitively load



the antenna for AM reception and to resonate the antenna for FM reception.

3,576,577

AERIAL RADIATING WITH DIFFERENT BEAMWIDTH IN TWO PERPENDICULAR PLANES

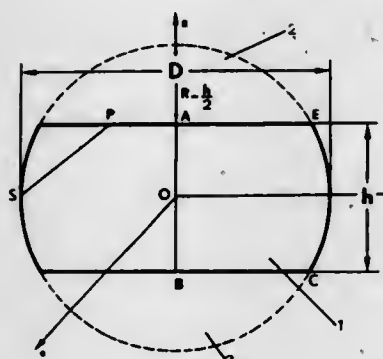
Bernard Chiron, and Louis Duffau, Paris, France, assignors to Societe Lignes Telegraphiques Et Telephoniques, Paris, France

Filed June 5, 1968, Ser. No. 734,583

Int. Cl. H01q 19/06

U.S. Cl. 343-753

5 Claims



Aerials to provide a very high directivity (1° approx.) in one plane and a much lower directivity in the plane perpendicular are made of a primary source feeding a dielectric lens shaped according to the volume obtained by rotating around an axis a broken curvilinear line which crosses said axis at two distinct points and admits a plane of symmetry perpendicular to said axis and is made of a dielectric material the varying index of which is a function only of the distance to the axis.

3,576,578

DIPOLE ANTENNA IN WHICH ONE RADIATING ELEMENT IS FORMED BY OUTER CONDUCTORS OF TWO DISTINCT TRANSMISSION LINES HAVING DIFFERENT CHARACTERISTIC IMPEDANCES

Ernest T. Harper, Mountain View, Calif., assignor to Sylvania Electric Products Inc.

Filed Nov. 30, 1967, Ser. No. 687,051

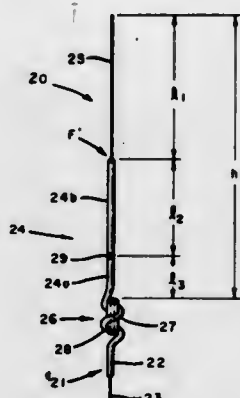
Int. Cl. H01q 9/04, 9/16

U.S. Cl. 343-791

3 Claims

One half of a dipole antenna is formed by the extension of a center conductor of a coaxial transmission line beyond the point of termination of the outer conductor at the feed point of the dipole. The other half of the dipole is formed by the outer conductor between a broadband cable choke and the feed point. The part of the antenna between the choke and

feed point comprises two coaxial lines, one having a characteristic impedance equal to that of the antenna feed line and



the other having a characteristic impedance greater than that of the feed line.

3,576,579

PLANAR RADIAL ARRAY WITH CONTROLLABLE QUASI-OPTICAL LENS

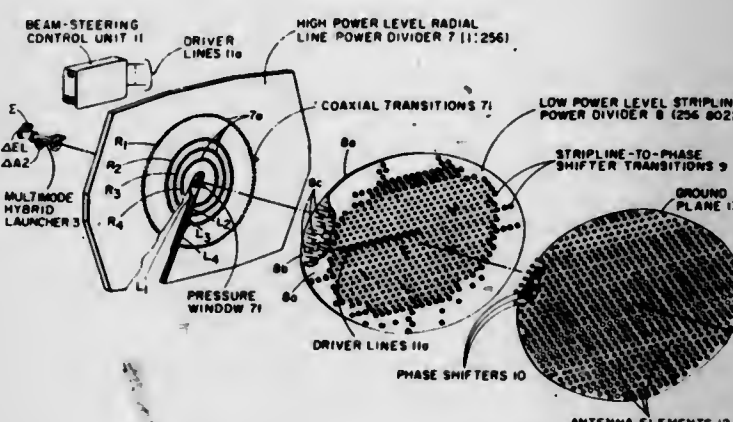
Alfred J. Appelbaum, Newton Center; Peter R. Cloud, Sudbury, and Leonard I. Parad, Framingham, Mass., assignors to Sylvania Electric Products Inc.

Filed Apr. 19, 1968, Ser. No. 722,689

Int. Cl. H01q 13/00; H01p 5/12

U.S. Cl. 343-778

16 Claims



Antenna feed apparatus for use in electronically scanned phased-array antenna systems. In a transmit mode of operation, input power to be fed to an array of m antenna elements is applied to a multimode hybrid launcher wherein a sum signal is generated and applied to the input of a high-power level multitier radial line power divider. The sum signal is divided by the radial line power divider into n equivalent output signals of reduced power level. The n signals are then divided into m signals of varying power levels by a low-power level stripline power divider, and applied via m transitions to m phase shifters associated with the array of antenna elements. Each phase shifter operates under the control of a beam-steering control unit to insert a differential phase shift in each antenna element channel whereby a desired phase front is established across the aperture of the antenna array. In a receive mode of operation, monopulse signals received by the antenna array from a target are combined by the power dividers and applied to appropriate sum, elevation difference, and azimuth difference ports of the hybrid launcher.

3,576,580

BOOM AND FEEDLINE CONSTRUCTION FOR MULTIELEMENT ANTENNA

Gabriel John Enyedy, Palo Alto, Calif., assignor to Sylvania Electric Products Inc.

Filed Aug. 4, 1969, Ser. No. 847,043

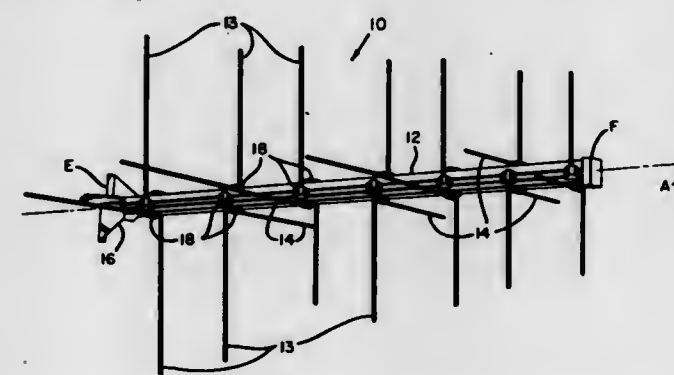
Int. Cl. H01q 11/10, 11/12

U.S. Cl. 343-792.5

2 Claims

A boom for supporting the radiating elements of a log periodic antenna is constructed as a unitary tubular structure

comprising two or more flat or angled conductor strips insulated from each other and having longitudinally extending outwardly opening grooves therein. The antenna elements are directly mechanically and electrically connected to the flat surfaces of the strips which conduct electrical energy between the elements and external feedlines. The strips are mechanically interconnected by longitudinally spaced elec-



tric insulator blocks disposed internally of the boom. The blocks also serve as a mechanical support to which the sets of elements are connected along the boom. The external grooves stiffen the strips and additionally provide channels in which the feedline may be externally disposed for a connection to the strips in a manner to provide a balanced feed for the elements on opposite sides of the boom.

3,576,581

RADOMES

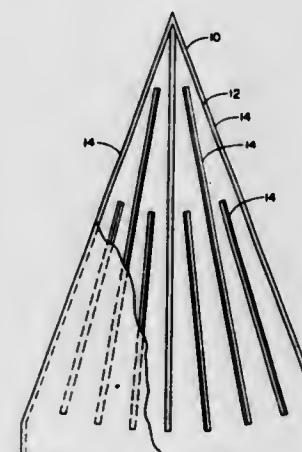
Gus P. Tricoles, and Eugene L. Rope, San Diego, Calif., assignors to General Dynamics Corporation

Filed Aug. 15, 1968, Ser. No. 752,948

Int. Cl. H01q 1/42

U.S. Cl. 343-872

12 Claims



A radome especially suitable for circularly polarized waves and antennas is described. The radome has an anisotropic core made up of parallel dielectric strips which may be in the form of dielectric rings which extend circumferentially around the wall of dielectric material which makes up the radome. Alternatively, the strips may extend longitudinally along the wall.

3,576,582

MULTIPLE POINT RECORDER

Robert T. Smith, Jr., Hatboro, Pa., assignor to Honeywell Inc., Minneapolis, Minn.

Filed May 31, 1968, Ser. No. 733,506

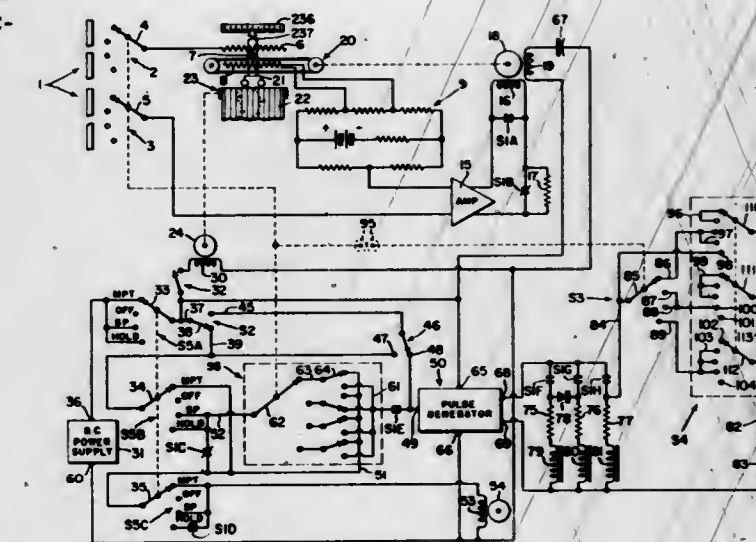
Int. Cl. G01d 9/34

U.S. Cl. 346-34

13 Claims

A multiple point recorder is provided having printing means which are electrically actuated to print record trace marks and trace identifying marks on a record member. Incorporated in the recorder are selective printing switch

means whereby the selection of input points to be processed may be programmed electrically, even during recorder operation, and additional switching means operative to select



the frequency at which trace identifying marks are printed. Means are also provided in the recorder to color code the record trace and trace identifying marks printed by use of a multiple color band printing ribbon.

3,576,583

DIRECT RECORD IMAGE DISCHARGE TUBE

Yoshihiro Uno, Machida-shi, Japan, assignor to Matsushita Electric Industrial Co. Ltd., Osaka, Japan

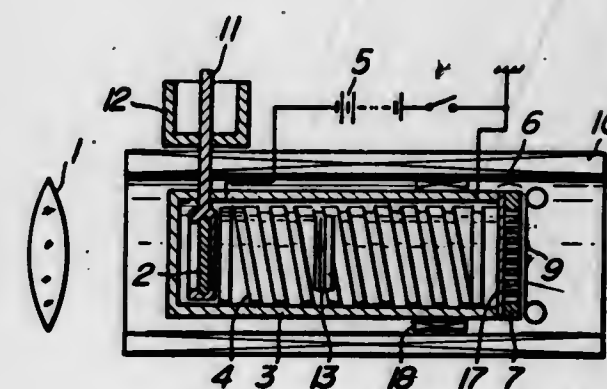
Filed Oct. 24, 1967, Ser. No. 677,684

Claims priority, application Japan, Nov. 2, 1966, 72657/66

Int. Cl. G01d 15/06; H01j 31/26, 33/00

U.S. Cl. 346-74

10 Claims



A device for directly recording an optical image on a recording medium, first by converting the optical image to an electron beam image, then directly recording the electron beam image on a recording medium sensitive to electron beams.

3,576,584

DIGITAL INCREMENTAL MAGNETIC TAPE RECORDER

Ronald D. Cone, and Clarence A. Nelsen, Saratoga, Calif., assignors to Calma Company

Filed Nov. 13, 1967, Ser. No. 682,133

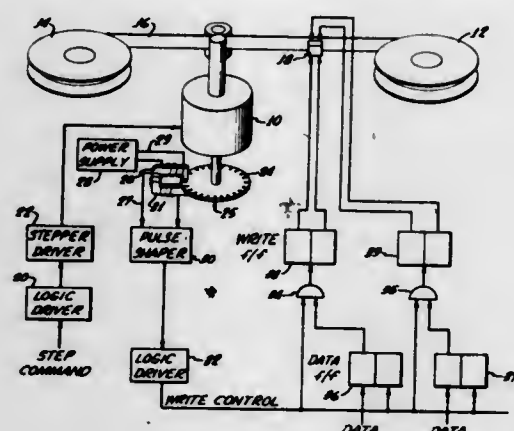
Int. Cl. G01d 15/12; G11b 15/54

U.S. Cl. 346-74

7 Claims

A recording medium is advanced an incremental distance by a stepper motor in response to a step command input. A displacement indicating means generates a write control signal to a recording means when the recording medium has been advanced a predetermined portion of the incremental

distance. Data bit inputs to the recording means appearing as an input to the apparatus coincident with the step command



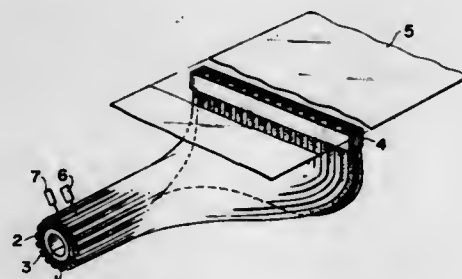
will be recorded on the recording medium when the write control signal is generated.

3,576,585 SCANNING AND RECORDING DEVICE FOR ELECTROSTATIC RECORDING

Masaru Ohno, and Kimitaro Suzuki, Tokyo, Japan, assignors to Toho Denki Co., Ltd., Tokyo, Japan
Filed Oct. 24, 1968, Ser. No. 770,318
Int. Cl. G01d 15/06

U.S. Cl. 346-74

6 Claims



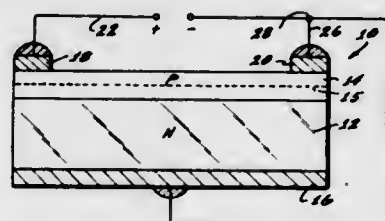
A scanning and recording device for electrostatic recording which comprises a dielectric sheet sandwiched between

two electroconductive sheets, one of said conductive sheets being photoetched into the form of the multistylus, the other conductive sheet being used as a ground electrode, one of the end portions of said sandwiched sheets being made into a cylindrical shape to be used as the scanning head, and the flat and straight end surface at the other end of said sheets being used as the recording head, said device being suitable for an operation at a high scanning rate without necessitating any special electronic tube as recording element.

3,576,586 VARIABLE AREA INJECTION LUMINESCENT DEVICE

Bernd Ross, Arcadia, Calif., assignor to Bell & Howell Company
Filed Aug. 5, 1968, Ser. No. 750,068
Int. Cl. G01d 9/42; G11b 7/12; H05b 33/16
U.S. Cl. 346-108

6 Claims



An electroluminescent semiconductor diode having a PN junction extending along an edge thereof and first and second contacts spaced thereon. Forward voltage is applied via the first contact through the PN junction to generate light thereat and the second contact is held at ground potential to limit the spread of light to the vicinity of the first contact. As voltage across the PN junction increases, the light spreads from the first contact to the second contact as a function of such voltage increase. The regions of the semiconductor defining the PN junction can be shaped so that light is generated at a predetermined nonlinear function of the voltage across the PN junction.

CHEMICAL

3,576,587 METHOD FOR DYEING HAIR AND ANTHRA- QUINONE DYESTUFF COMPOSITION

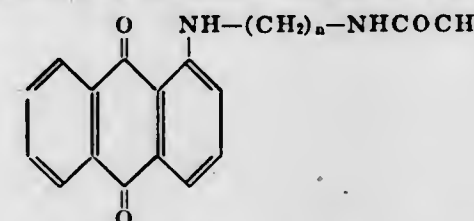
Gregoire Kalopissis, Paris, and Andree Bugaut, Boulogne-sur-Seine, France, assignors to L'Oreal, Paris, France
No Drawing. Filed July 1, 1968, Ser. No. 741,284
Claims priority, application Luxembourg, July 5, 1967, 54,036

Int. Cl. D06p 1/42; C09b 1/50

U.S. Cl. 8-10

3 Claims

New hair dyeing compound responding to the formula



in which n is a whole number lying between 2 and 6 inclusive and method for making the same as well as an aqueous solution thereof as a composition for dyeing hair.

3,576,588 PROCESS FOR DYEING SYNTHETIC FIBERS AND BLENDS IN DYE BATHS CONTAINING AM- MONIUM THIOCYANATE AND AMMONIUM CITRATE

John C. Willson, Bloomfield, N.J., assignor to Allied Chemical Corporation, New York, N.Y.
No Drawing. Filed Sept. 13, 1967, Ser. No. 668,297
Int. Cl. D06p 3/82

U.S. Cl. 8-21

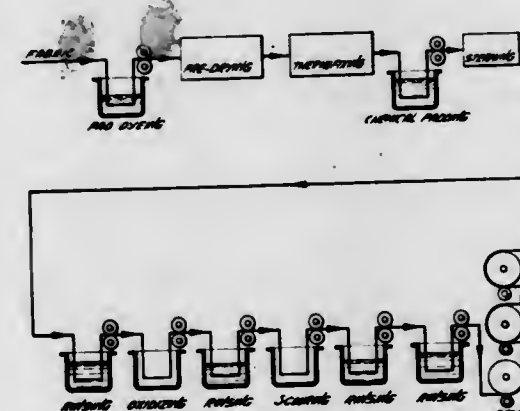
13 Claims
Improved coloring compositions, especially printing pastes, comprising at least one basic or disperse organic dyestuff together with a mixture of ammonium thiocyanate and at least an equal weight of ammonium citrate, said ammonium thiocyanate amounting to at least about 0.5% by weight of the coloring composition are provided. The improved compositions, when applied to natural and synthetic fibrous materials, provide a high fixation efficiency of the dyestuff with authentic dye shade.

3,576,589 METHOD FOR THERMOFIXATION DYEING OF POLYESTER/COTTON FABRIC IN A MIXTURE OF VAT/DISPERSE DYE

Donald E. Coon, Chesapeake, Va., assignor to Virginia Chemicals Inc., West Norfolk, Va.
Filed Apr. 22, 1968, Ser. No. 723,138
Int. Cl. D06p 3/84

U.S. Cl. 8-21

10 Claims



Method for dyeing of fabric, such as polyester/cotton fabric, in a vat/disperse dye system, using hydroxylamine

sulfate under conditions of thermal fixation. The hydroxylamine sulfate is maintained at a pH in the range 5.0 to 6.5 in a vat/disperse dye pad to obtain maximum penetration of the dye within the fibers of the fabric.

3,576,590 SULFUR TREATMENT OF AROMATIC POLYAMIDE SHAPED ARTICLES

Stephen S. Hirsch, Raleigh, N.C., assignor to Monsanto Company, St. Louis, Mo.
No Drawing. Filed Sept. 22, 1967, Ser. No. 669,685
Int. Cl. D06m 3/06

U.S. Cl. 8-115.5

9 Claims
Aromatic polyamide fiber, fabrics, and other shaped articles are converted into dimensionally stable fireproof products by constructive heat treatment at elevated temperatures with elemental sulfur under controlled conditions.

3,576,591 METHYLOLATED CYCLIC UREA COMPOSITIONS CONTAINING SODIUM FORMATE OR SODIUM TETRABORATE

Michael R. Cusano, Charlotte, and Robert D. Featherston, Salisbury, N.C., assignors to Proctor Chemical Company, Inc., Salisbury, N.C.
No Drawing. Filed Apr. 23, 1968, Ser. No. 723,559
Int. Cl. C08g 51/56; D06m 13/14

U.S. Cl. 8-116.3

10 Claims
The conventional treatment of cellulosic fabrics with cyclic urea cellulose reactive crease-proofing agents to produce durable press or wash-and-wear properties is improved by the addition of a minor amount of sodium formate or sodium tetraborate. This salt addition to the crease-proofing composition reduces adverse yellowing or color changes caused by the conventional treatments.

3,576,592 PROCESS FOR PERMANENTLY PRESSING TEXTILE ARTICLES MADE OF KERATINIC FIBERS

Charles Zviak, Franconville, and Andre Viout, Paris, France, assignors to Societe Anonyme dite: L'Oreal
No Drawing. Filed Feb. 21, 1966, Ser. No. 528,762
Claims priority, application France, Feb. 23, 1965, 6,590; Aug. 5, 1965, 27,374
Int. Cl. C09k 3/30; D06m 15/12

U.S. Cl. 8-127.6

2 Claims
The method of permanently pressing textile articles containing keratinic fibers, which comprises the steps of impregnating the textile article with a solution containing effective amounts of a water soluble polymer having branched chains having terminal —SH functional groups, placing the impregnated textile article in the configuration corresponding to the shape desired, and then pressing the area in which a crease is desired at an elevated temperature.

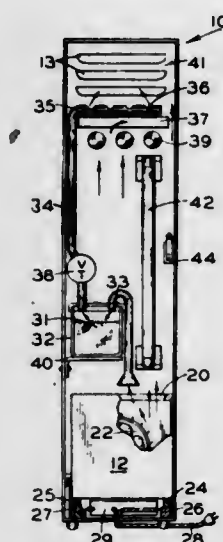
3,576,593 ENVIRONMENTAL AIR SANITIZER

Daniel J. Cicirello, 6406 Tracy St., Little Rock, Ark. 72206
Filed Apr. 28, 1969, Ser. No. 819,905
Int. Cl. A61l 9/00, 9/04

U.S. Cl. 21-53

9 Claims
An apparatus for selectively treating environmental air as it is circulated over a path including an elongate enclosure in which are disposed facilities effective for withdrawing air from a room through a mechanical filter, dividing the air taken in into two discrete paths, chemically treating the air in one path by adding a vapor phase

additive, optically treating the air in the other path first with germicidal ultraviolet radiation followed by ozonizing ultraviolet radiation, turbulently mixing the germi-



cidally irradiated air with the ozonized air, and finally blending the additive treated air with the optically treated air and returning the blended air to the room.

3,576,594 PROCESS FOR THE STERILIZATION OF SOLID SURFACES

Alexander Knetemann, Voorburg, Hubertus Leonardus Maria Lelieveld, Vlaardingen, Renee van Rhee, Maassluis, and Gerard Tuynenburg Muys, Rotterdam, Netherlands, assignors to Lever Brothers Company, New York, N.Y.

No Drawing. Filed July 24, 1968, Ser. No. 747,078
Claims priority, application Great Britain, July 31, 1967, 35,123/67

Int. Cl. A61L 13/00

U.S. Cl. 21—57 4 Claims
The sterilisation of solid surfaces, such as the interior of food containers, is achieved by hydrogen chloride gas at temperatures below 40° C. in a manner such that there is no residual hydrochloric acid on the sterilised surface, control of the interrelated factors of temperature, duration of contact, and water-vapor, hydrogen chloride content being employed.

3,576,595 RECOVERY OF MOLYBDENUM VALUES FROM ALKALI MOLYBDATE SOLUTIONS

Vincent Chiola, Fred W. Liedtke, and Clarence D. Vanderpool, Towanda, Pa., assignors to Sylvania Electric Products Inc.

Filed June 30, 1969, Ser. No. 837,775

Int. Cl. C22B 59/00; C01G 39/00

U.S. Cl. 23—22 9 Claims

A highly pure ammonium molybdate solution is obtained from an impure molybdenum source by a process that comprises digesting the molybdenum source in an aqueous solution of an alkali metal hydroxide, adjusting the pH of the resulting solution to from about 1 to about 4 to form an aqueous feed solution, contacting the aqueous feed solution with an organic extractant solution consisting essentially of a trialkyl amine, an alkyl phosphate ester and a water-insoluble hydrocarbon solvent to extract at least some of the molybdenum into the organic solution, separating the molybdenum-laden organic solution from the resulting molybdenum-barren raffinate, contacting the molybdenum-laden organic solution with an aqueous solution containing ammonium ions to remove at least

some molybdenum from the organic solution and separating the organic solution and the aqueous solution containing ammonium and molybdenum.

3,576,596 REMOVAL OF CARBON MONOXIDE AND NITRIC OXIDE WITH COPPER CHROMIUM IMPREGNATED ON A SUPPORT

Marion F. Kranc, Bethel Park, and John R. Lutchko, Pittsburgh, Pa., assignors to Calgon Corporation
Continuation-in-part of abandoned application Ser. No. 653,517, July 14, 1967. This application Oct. 13, 1967, Ser. No. 683,062

Int. Cl. B01D 53/00, 53/34

U.S. Cl. 23—25 13 Claims
Carbon monoxide is removed from nitrogen, ammonia synthesis gas, air, automobile exhausts and other gases by a mixture of copper-chromium impregnated on a support of high surface area, preferably activated carbon. Copper-chromium-silver impregnated supports also can be used.

The impregnated supports also can be used to remove nitric oxide from other gases.

3,576,597 METHOD FOR THE PREPARATION OF LITHIUM SILICATE SOLUTIONS

Helmut V. Freyhold, Dusseldorf-Oberkassel, and Volker Wehle, Hilden-Rhineland, Germany, assignors to Philadelphia Quartz Company, Philadelphia, Pa.

No Drawing. Filed Sept. 27, 1967, Ser. No. 671,143

Int. Cl. C01B 33/32; B01G 11/34

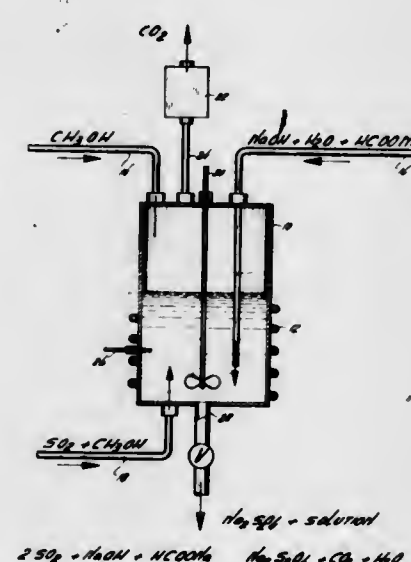
U.S. Cl. 23—110 4 Claims
Clear concentrated solutions of lithium silicate having a ratio by weight greater than 4SiO₂:1Li₂O are prepared batchwise or continuously by preparing solutions of silica in lithium hydroxide, separating the precipitated reaction product formed at 70 to 100° C., and recovering the clear liquid which forms on cooling said precipitate.

3,576,598 PRODUCTION OF SODIUM HYDROSULFITE FROM FORMATES

Jack Plentovich, Nansemond County, Charles Ellis Winslow, Jr., Norfolk, and Mearl A. Kise, Portsmouth, Va., assignors to Virginia Chemicals Inc., Portsmouth, Va.
Continuation-in-part of application Ser. No. 819,772, Apr. 28, 1969. This application Feb. 5, 1970, Ser. No. 9,078

Int. Cl. C01B 17/98

U.S. Cl. 23—116 10 Claims



Method for the production of anhydrous sodium hydrosulfite (Na₂S₂O₄) by feeding together into a reactor containing a water-miscible alcohol (1) a solution of sulfur

dioxide (SO₂) and a water-miscible alcohol and (2) a solution of sodium hydroxide (NaOH) and sodium formate (HCOONa) in water (H₂O), stirring and heating under pressure while venting carbon dioxide (CO₂) and cooling and recovering the hydrosulfite by filtration.

3,576,599 CONTINUOUS PROCESS FOR THE PRODUCTION OF CALCIUM SULPHATE ALPHA-HEMIHYDRATE FROM GYPSUM

Alexander Beveridge Anderson and Martin S. Bloom, Norton-on-Tees, England, assignors to Imperial Chemical Industries Limited, London, England

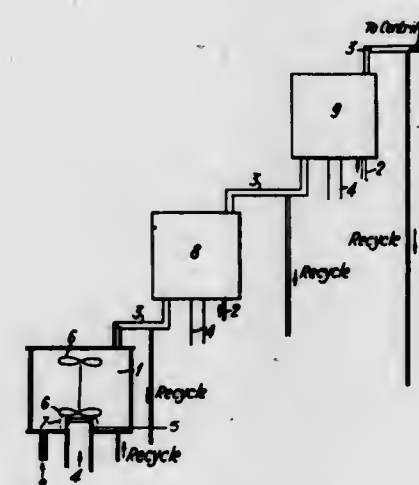
Filed Jan. 12, 1968, Ser. No. 697,530

Claims priority, application Great Britain, Jan. 17, 1967, 2,475/67

Int. Cl. C01F 11/46

U.S. Cl. 23—122

4 Claims



In a continuous process for the production of calcium sulphate alpha-hemihydrate from gypsum, the rate of conversion to alpha-hemihydrate and the rheology of the product are controlled by controlling the temperature and flow dynamics of the injected steam.

3,576,600 PROCESS FOR NONCATALYTIC PRODUCTION OF NITRIC OXIDE

Leslie C. Hardison, Norwalk, Conn., assignor to Universal Oil Products Company, Des Plaines, Ill.

Continuation-in-part of application Ser. No. 689,647, Dec. 11, 1967. This application Feb. 3, 1970, Ser. No. 8,378

Int. Cl. C01B 21/24

U.S. Cl. 23—162 11 Claims
The noncatalytic combustion of ammonia between heat confining screen means with a heat sink upstream and adjacent to the screen means to preclude preignition of the ammonia in the production of nitric oxide.

3,576,601 PROCESS FOR PRODUCTION OF PHOSPHORIC ACID BY THE USE OF AN ION EXCHANGE RESIN

Linden Wayne Cochran, Basking Ridge, N.J., assignor to Multi-Minerals Limited, Toronto, Ontario, Canada
No Drawing. Filed Aug. 17, 1967, Ser. No. 661,184

Claims priority, application Germany, May 27, 1967, M 74,138, M 74,139

Int. Cl. C01B 25/18

U.S. Cl. 23—165 3 Claims

This invention relates to a method for the production of an acid, such as phosphoric, sulfuric, arsenic, sulfurous, etc., by contacting a mother liquor comprising a saturated solution of a salt of the acid with the acid and a material containing a salt of the acid and the subsequent separation of suspended crystals from said mother liquor for conversion to the acid by contact with an ion exchange resin.

3,576,602 METHOD FOR MANUFACTURING DIAMOND

Tatsuo Kuratomi, Hamatake 4-chome 2-18, Chigasaki-shi, Kanagawa-ken, Japan

No Drawing. Filed July 15, 1968, Ser. No. 744,682

Claims priority, application Japan, July 17, 1967, 42/45,602

Int. Cl. C01B 31/06

U.S. Cl. 23—209.1 3 Claims

Diamond is produced by subjecting to elevated temperatures and pressures a mixture of a non-diamond form of carbon, a solvent consisting of a carbide such as vanadium carbide and/or a carbide forming metal such as vanadium, and a catalyst or promoter selected from the group consisting of β -Ti, β -Zr, β -Hf, V, Nb, Cu and Be.

3,576,603 HYDROGEN MANUFACTURE USING GAS TURBINE DRIVEN CENTRIFUGAL COMPRESSORS

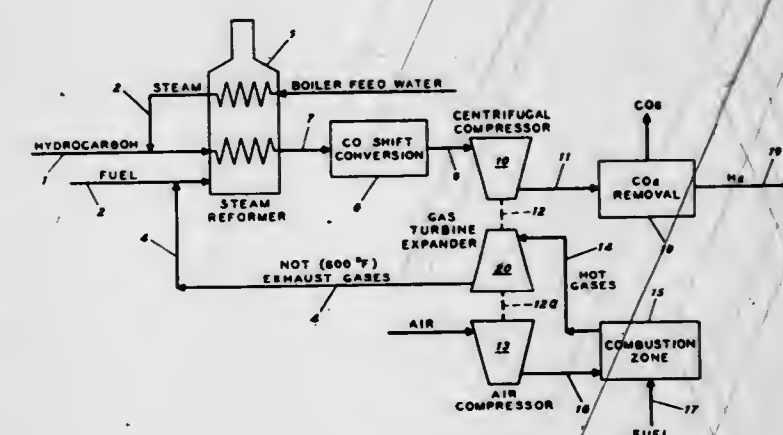
Calvin S. Smith and William J. McLeod, El Cerrito, Calif., assignors to Chevron Research Company, San Francisco, Calif.

Continuation-in-part of application Ser. No. 736,520, May 17, 1968, which is a continuation-in-part of application Ser. No. 665,106, Sept. 1, 1967. This application Apr. 1, 1969, Ser. No. 812,266

Int. Cl. C01B 1/16, 1/03

U.S. Cl. 23—212

4 Claims



A process for producing high pressure hydrogen which comprises:

- Reacting a hydrocarbon with steam in a steam reformer to produce H₂ and CO₂,
- Centrifugally compressing, at least a portion of the H₂ and CO₂ in a centrifugal compressor, prior to separating the CO₂ from the H₂,
- Driving the centrifugal compressor by means of a gas turbine driver,
- Using air which has been incompletely combusted as motive power for the gas turbine driver, and
- Supplying heat for the endothermic reaction of the hydrocarbon with steam in the steam reformer by burning fuel with incompletely combusted exhaust air from the gas turbine driver.

3,576,604 METHOD OF HEAT DETECTION

Peter R. Hammond, China Lake, Calif., assignor to the United States of America as represented by the Secretary of the Navy

No Drawing. Filed Mar. 6, 1969, Ser. No. 805,006

Int. Cl. C09D 11/00; C09K 3/00, 11/12

U.S. Cl. 23—230 3 Claims

A method for detecting heat effects which comprises applying to a unit affected by heat a mixture of weakly interacting acceptor-donor chemicals which show sharp color changes at specific temperatures.

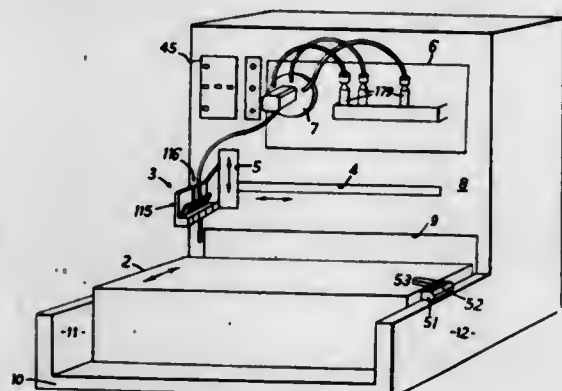
3,576,605

MULTIPLE PIPETTING APPARATUS

Alan R. Drake and Leslie E. Ruffell, Essex, and Derrick A. Patient, Kingston-on-Thames, Surrey, England, assignors to Baird and Tatlock (London) Limited, Chadwell Heath, England

Filed Feb. 11, 1969, Ser. No. 798,340
Claims priority, application Great Britain, Feb. 13, 1968, 6,918/68

Int. Cl. B011 3/02; G01n 1/00, 1/14
U.S. Cl. 23—259 22 Claims



Multiple pipetting apparatus has rack means for supporting a plurality of receptacles in a rectangular array, means for moving the array in stepwise manner relative to a dipper mechanism so that the rows of receptacles are positioned in turn under the dipper mechanism and means for moving the dipper mechanism parallel to the rows so that it is positioned in turn over each receptacle of a row.

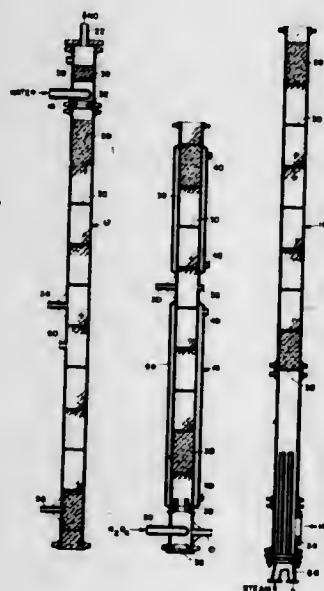
3,576,606

REACTOR FOR THE MANUFACTURE OF NITRIC OXIDE

Frank E. de Vry, Greenville, Del., assignor to Hercules Incorporated, Wilmington, Del.

Continuation-in-part of application Ser. No. 731,959, May 24, 1968. This application July 8, 1969, Ser. No. 839,821

Int. Cl. B01j 9/02; C01b 21/24
U.S. Cl. 23—283 5 Claims



A reaction column for continuously converting nitrogen tetroxide into anhydrous nitric oxide of high purity with strong nitric acid as a co-product according to the equation $3\text{NO}_2 + \text{H}_2\text{O} \rightarrow \text{NO} + 2\text{HNO}_3$. The column is packed and even distribution of gas and liquid throughout its height is achieved by distributors and redistributors

positioned within the packing in effective arrangement with the NO_2 and H_2 feed inlets. The NO_2 feed enters the column as liquid N_2O_4 . The column further includes an entrainment separator located within the column and above the uppermost distributor and a heating means located within said column at the base thereof to strip NO_2 from the nitric acid co-product prior to its egress from the column.

3,576,607

PROCESS FOR THE RECOVERY OF AMMONIUM SALTS FROM PROCESS WASTE STREAMS

Andrew T. Guttman, Maple Heights, Michael G. Konicek, Mayfield Heights, and Albert J. Grigsby, Northfield, Ohio, assignors to The Standard Oil Company, Cleveland, Ohio

No Drawing. Filed Apr. 11, 1968, Ser. No. 720,447
Int. Cl. B01d 9/02; C01b 21/00

U.S. Cl. 23—299 6 Claims

A process is described for the recovery of fertilizer grade ammonium salts in high yields from acrylonitrile waste water process streams containing water-soluble organic tars by the removal of water and volatile organic matter from the waste water process streams in the presence of a water miscible solvent, recovering the solid ammonium salt from the residual ammonium salt-solvent-tar mixture and recovering the solvent for re-use.

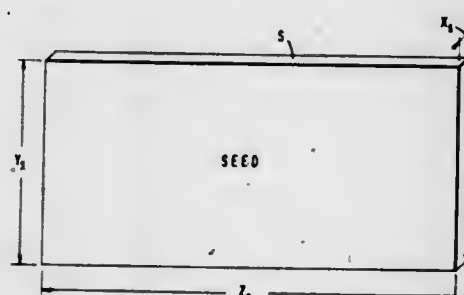
3,576,608

HYDROTHERMAL SYNTHESIS OF QUARTZ UTILIZING X-CUT SEED PLATE ELONGATED ON THE CRYSTALLOGRAPHIC Z AXIS

David W. Gehres, Carlisle, Pa., assignor to Alken Industries, Inc., % P. R. Hoffman Company, Division of Alken Industries, Inc., Carlisle, Pa.

Filed Oct. 16, 1967, Ser. No. 675,403
Int. Cl. B01d 9/02; C01b 33/12

U.S. Cl. 23—301 7 Claims



A quartz rock is grown by a hydrothermal synthesis process on a seed plate over 2 inches long on the crystallographic Z axis with its width on the Y axis and its thickness on the X axis. The seeds are mounted in pairs in an autoclave with the -X faces of the seed plates abutting during the growth cycle. Elongated bar-shaped blanks having their length in the Z axis equal to or greater than the length of the seed are sliced from the grown seed by cutting parallel to the Z axis.

3,576,609

STABLE COVALENT DIBORANE DIAMMONIATE AND ITS PREPARATION

Joseph M. Makhlouf, Mars, Pa., assignor to Mine Safety Appliances Company, Pittsburgh, Pa.

No Drawing. Continuation-in-part of application Ser. No. 448,567, Apr. 8, 1965. This application Dec. 24, 1968, Ser. No. 786,753

Int. Cl. C011 6/22

U.S. Cl. 23—358 1 Claim

A new covalent diborane diammoniate, $\text{B}_2\text{H}_6(\text{NH}_3)_2$, is prepared by reaction of diborane and ammonia in methylene chloride.

3,576,610

THERMOSETTING RESIN-BONDED ABRASIVES CONTAINING CUBIC BORON NITRIDE GRAINS WITH A BOROSILICATE COATING THEREON

Wilfred F. Mathewson, Jr., Franklin, Mich., assignor to General Electric Company

No Drawing. Filed May 15, 1968, Ser. No. 729,457
Int. Cl. B24d 5/02; C08g 51/12

U.S. Cl. 51—295 8 Claims

Cubic crystal boron nitride grain is bonded together to form a grinding wheel or other abrasive articles by forming a thin layer of borosilicate on the grain and then bonding the borosilicate-coated grain together with a bonding material. In the preferred embodiment the process comprises first forming a thin deposit of boric oxide on the surface of the cubic crystal boron nitride grain, as by heating and exposing the grain to an oxidizing atmosphere, then applying to the grain an organosilicon compound and heating to cause a reaction between the compound and the boric oxide with resultant formation of a borosilicate, and thereafter bonding the borosilicate-coated grain with an organic resin. By means of the invention, cubic crystal boron nitride abrasive tools with extremely high bond strength can be accomplished.

3,576,611

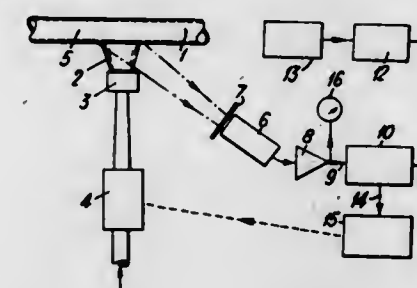
RADIATION CONTROL MEANS FOR SHAPING TUBES

Derek Obersby, Stafford, England, assignor to Quickfit & Quartz Limited, Walton, Stone, England

Filed July 10, 1967, Ser. No. 652,352
Claims priority, application Great Britain, July 15, 1966, 31,977/66

Int. Cl. C03b; C03c 14 Claims

U.S. Cl. 65—162



In the manufacture of an article of vitreous material, heating the material, sensing a band of wave-lengths of radiation emitted by the material, and generating a signal to control heating and/or manipulation of the material when the signal reaches a predetermined magnitude.

3,576,612

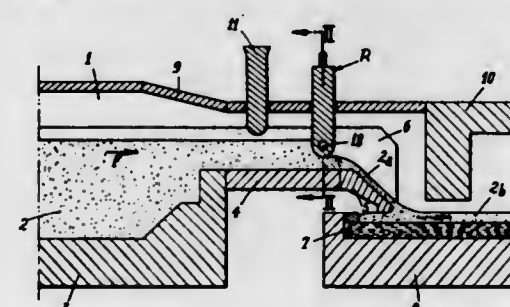
APPARATUS FOR THE MANUFACTURE OF FLOAT GLASS WITH A HEATED TWEEL

Georges Prislau, Boussols, France, assignor to Boussols Souchon Neuvesel, Paris, France

Filed Jan. 25, 1968, Ser. No. 700,398
Claims priority, application France, Feb. 9, 1967, 94,253

Int. Cl. C03b 18/02 5 Claims

U.S. Cl. 65—182



Apparatus for the manufacture of flat glass by flowing and solidification of a layer of glass which floats on a

bed of molten-metal, comprising a spillway for the molten glass which serves to connect the tank of the melting furnace to the tank which contains the bath of molten metal and a tweel for regulating the flow of glass and consisting of a refractory panel of adjustable height which is mounted transversely within said spillway. The tweel has at least one cavity in which is housed at least one electric heating resistor fitted with connection members for the supply of current.

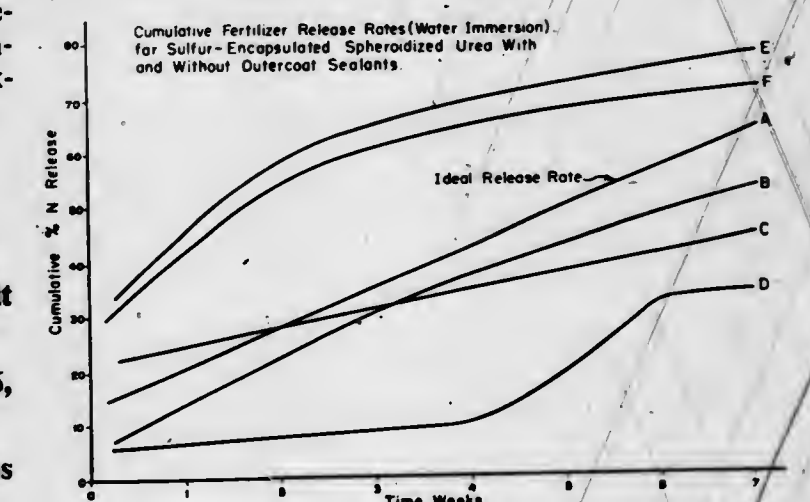
3,576,613

SULFUR ENCAPSULATION OF FERTILIZERS TO PROVIDE CONTROLLED DISSOLUTION RATES

Paul S. Fleming, Cheltenham, Pa., assignor to Thiokol Chemical Corporation

Filed July 24, 1967, Ser. No. 655,397
Int. Cl. C05c 9/00

U.S. Cl. 71—28 16 Claims



Certain finely divided powders have been found to be unusually effective in reducing the contact angle between the surface of solid fertilizer pellets and molten sulfur, the effect of which phenomenon allows molten sulfur to "wet" the surface of the fertilizer pellets more easily, when a thin layer of the finely divided powder is interposed between the fertilizer surface and the molten sulfur. By using a small amount of one of these finely divided powders as a subcoating immediately adjacent to and surrounding each fertilizer pellet, it is possible to produce sulfur-encapsulated fertilizer pellets adapted for use in soil to provide a controlled release of the fertilizer nutrients at a rate predetermined for the metabolic needs of a particular crop plant, using much less sulfur than would be required to achieve comparable results absent the powder-subcoat.

3,576,614

PROCESS FOR PRODUCTION OF GRANULAR HIGH-ANALYSIS COMPOUND FERTILIZER

Kozo Fukuba, Masanori Kobayashi, Akio Sakaue, Hiroshi Nonaka, and Hiroshi Iida, Niihama-shi, and Syozo Fujioaka, Ehime-ken, Japan, assignors to Sumitomo Chemical Company, Ltd., Osaka, Japan

Filed Feb. 6, 1968, Ser. No. 703,319
Claims priority, application Japan, Feb. 9, 1967, 42/8,465

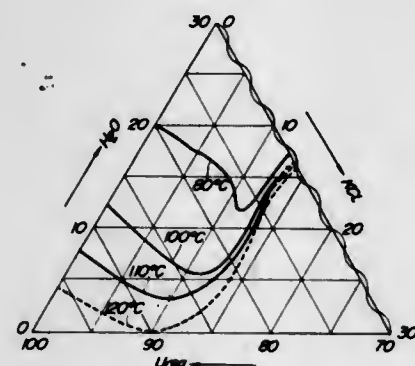
Int. Cl. C05b 17/00 4 Claims

U.S. Cl. 71—29

A granular high analysis compound fertilizer is produced economically and in good efficiency by a process consisting of the following steps:

- (1) spraying in the granulating system a melted mixture consisting of 55-95% by weight of urea, 2-44% by weight of potassium chloride and 1-10% by weight of water, into solid raw fertilizer materials consisting of (a) ammonium phosphate and/or superphosphate of lime, (b) other fertilizer components and (c) recycled

- powdery granules obtained at the step (4), while rotating the granulating system,
 (2) adding recycled powdery granules obtained at the step (4) to the granulated product obtained at the step (1),
 (3) cooling the resultant granular mixture obtained at the step (2) in a cooling zone of rotary drum type,



- (4) sifting the cooled granular mixture obtained at the step (3) to separate a granulated end product from powdery granules, and
 (5) recycling the powdery granules separated at the step (4) for the granulating treatment at the step (1) and for mixing with the granulated product at the step (2).

3,576,615

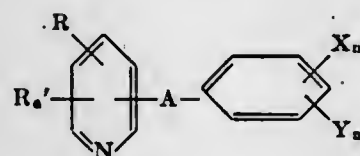
FERTILIZER COMPOSITION AND PROCESS
 William P. Banks and Richard L. Every, Ponca City, Okla., assignors to Continental Oil Company, Ponca City, Okla.
 No Drawing. Filed Nov. 15, 1967, Ser. No. 683,122
 Int. Cl. C05b 7/00

U.S. Cl. 71-51 7 Claims
 Potassium chloride can be stored and transported in contact with carbon steel by dissolving or forming a slurry in ammonia; minor amounts of water can be tolerated without substantially increasing corrosivity. In a second embodiment, the composition can also include elemental sulfur.

3,576,616

HERBICIDAL COMPOSITIONS AND METHODS
 Kurt A. Nowotny, Camas, Wash., assignor to Monsanto Company, St. Louis, Mo.
 No Drawing. Continuation-in-part of abandoned application Ser. No. 655,763, July 25, 1967. This application May 15, 1969, Ser. No. 825,077
 Int. Cl. A01n 9/22

U.S. Cl. 71-94 13 Claims
 Herbicidal compositions comprising pyridines of the formula



wherein A is selected from the group consisting of O and S; X and Y are each selected from the group consisting of fluorine, chlorine and bromine; R is selected from the group consisting of fluorine, chlorine, bromine, nitro and amino; a is an integer 0 or 1; m is an integer from 0 to 3; n is an integer from 1 to 2; R' is selected from the group consisting of chlorine, bromine, fluorine, and amino; and the acid addition salts thereof.

3,576,617 METHOD OF PROMOTING THE GROWTH OF PLANTS

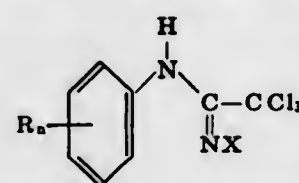
Eugene P. Di Bella, 168 Chestnut St., Rochelle Park, N.J. 07662
 No Drawing. Original application Jan. 21, 1965, Ser. No. 427,095. Divided and this application Nov. 25, 1969, Ser. No. 879,947
 Int. Cl. A01n 9/14; C07c 143/24

U.S. Cl. 71-103 10 Claims
 Salts of 2,3,6-trichlorotoluene-5-sulfonic acid, such as sodium 2,3,6-trichlorotoluene-5-sulfonate and monomethylammonium 2,3,6-trichlorotoluene-5-sulfonate, can be used to stimulate plant growth without causing visible damage to the plant.

3,576,618

2-TRICHLOROACETAMIDINE HERBICIDES
 Eva Lea Samuel, Bentleigh, Victoria, Australia, assignor to Monsanto Chemicals (Australia) Limited
 No Drawing. Filed Sept. 18, 1967, Ser. No. 668,634
 Claims priority, application Australia, Sept. 19, 1966, 11,209/66
 Int. Cl. A01n 9/20; C07c 129/08

U.S. Cl. 71-121 8 Claims
 Pre-emergent or post-emergent growth of undesired vegetation is controlled by the application of at least one N-trichloroacetamide of the formula:



wherein n is an integer from 0 to 2 inclusive; R is selected from the group consisting of halogen, nitro, alkyl of not more than six carbon atoms, and alkoxy of not more than six carbon atoms; and X is selected from the group consisting of hydrogen and chlorine. Compounds in which X in the above formula is chlorine are novel compounds.

3,576,619

METHOD FOR MAKING ALLOY POWDERS
 Frank Emley, Easton, Pa., assignor to Pfizer Inc., New York, N.Y.
 No Drawing. Filed Mar. 21, 1969, Ser. No. 809,417
 Int. Cl. B22f 9/00

U.S. Cl. 75-5 7 Claims
 Composite powders suitable for powder metallurgy are prepared by reducing an oxide of copper or silver blended with elemental tungsten or molybdenum powder.

3,576,620

PROCESS FOR THE RECOVERY OF NOBLE METALS FROM INORGANIC AND ORGANIC MATRICES
 Harold W. Wilson, El Paso, Tex., assignor to The Golden Cycle Corporation
 No Drawing. Filed May 8, 1968, Ser. No. 727,666
 Int. Cl. C22b 11/04

U.S. Cl. 75-101 14 Claims
 A substantially non-aqueous process for the separation and recovery of noble metals, particularly gold, platinum, and the platinum group metals, from materials containing the same. The process comprises subjecting particulate, preferably finely divided, dry material to an iodine-containing ketonic solvent, with heating and agitation of the slurry, to effect solvation of, and thus separation of, the noble metals, and other constituents from the material. The liquid phase so derived is acidified and heated to effect volatilization of iodine by decomposition of iodine-noble metal compounds together with attendant liberation, i.e., precipitation of elemental noble metals due to the decomposition of organic and inorganic noble metal containing

compounds. Alternatively, the noble metals may be separated and recovered from materials containing the same by first solvating the noble metals with aqua regia to obtain mixed metallic chloride salts, etc., of the noble metals present which are subjected to a ketonic solvent, which need not contain iodine, and the resultant mixture heated to remove excess ketonic material to leave an organic resinous residue containing noble metal inner complex compounds which are acidified and heated to effect decomposition thereof, and solvation of the non-noble metal components, thereby leaving a residue of elemental noble metals.

3,576,621

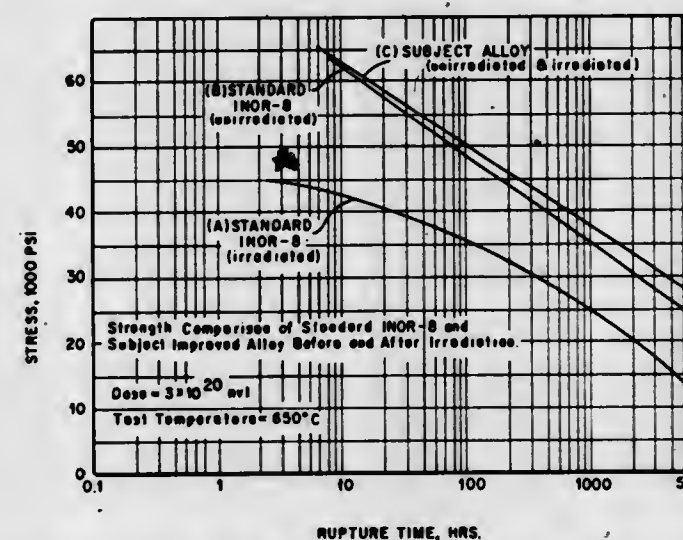
VANADIUM-BASE ALLOY
 George H. Keith, Reno, and David R. Mathews, Las Vegas, Nev., assignors to the United States of America as represented by the Secretary of the Interior
 No Drawing. Filed Apr. 23, 1969, Ser. No. 818,829
 Int. Cl. C22c 27/00

U.S. Cl. 75-134 4 Claims
 A vanadium-base alloy containing molybdenum, titanium, yttrium and carbon exhibits high strength as well as good fabricability. Strength is further improved by addition of silicon. The alloy finds use as a structural material in instruments, piping, containers, etc.

3,576,622

NICKEL-BASE ALLOY
 Herbert E. McCoy, Jr., Oak Ridge, Tenn., assignor to the United States of America as represented by the United States Atomic Energy Commission
 Filed May 29, 1968, Ser. No. 732,962
 Int. Cl. C22c 19/00

U.S. Cl. 75-171 1 Claim



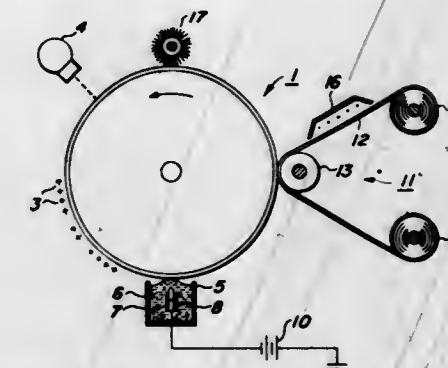
An improved nickel-base alloy which contains as essential alloying ingredients 11-13 weight percent molybdenum, 6-8 weight percent chromium, 0.02 to 0.5 weight percent carbon, up to 1.0 weight percent of a boride forming element selected from titanium, zirconium, and hafnium, up to 4 weight percent of at least one strengthening agent consisting of tungsten, tantalum, vanadium, and niobium, and the balance nickel.

3,576,623

DEVELOPMENT SYSTEM EMPLOYING A CORONODE IMMERSED IN A LIQUID DEVELOPER
 Christopher Snelling, Penfield, N.Y., assignor to Xerox Corporation, Rochester, N.Y.
 Filed Feb. 23, 1968, Ser. No. 707,574
 Int. Cl. G03g 13/10

U.S. Cl. 96-1 3 Claims
 The subject matter of this patent application is directed to a novel process of image development utilizing conventional liquid developers. It has been determined that due to the strategic placement of a coronode beneath the

surface of a liquid developer the development zone may be localized and development action controlled external-



ly by selectively deforming the liquid developer thus restricting contact of said developer to the particular image areas to be developed.

3,576,624

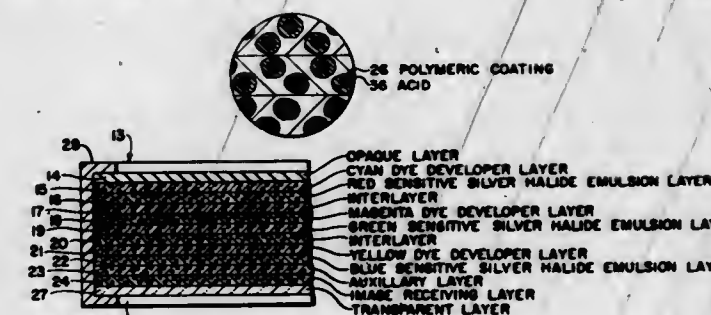
ELECTROSTATIC PRINTING METHOD EMPLOYING A PIGMENTED LIGHT FILTER
 Josef Matkan, Malvern, South Australia, Australia, assignor to Research Laboratories of Australia Pty. Limited, North Adelaide, South Australia, Australia
 Continuation-in-part of application Ser. No. 340,173, Jan. 27, 1964. This application Oct. 17, 1967, Ser. No. 675,984
 Int. Cl. G03g 13/14

U.S. Cl. 96-1.3 3 Claims
 Superior prints in a multiple series, using electrostatic phenomena, are obtained by first preparing a master image using a developer of yellow color established as being effective to sustain a charge over a period of time far in excess of a master image prepared from a developer of black color or one which omits yellow pigment.

3,576,625

PHOTOGRAPHIC DIFFUSION TRANSFER COLOR PROCESSES AND FILM UNIT FOR USE THEREIN
 Edwin H. Land, Cambridge, Mass., assignor to Polaroid Corporation, Cambridge, Mass.
 Filed July 31, 1969, Ser. No. 846,442
 Int. Cl. G03c 1/40, 7/00

U.S. Cl. 96-3 39 Claims



The present invention relates to a permanently structured composite photographic film unit, adapted to provide a color diffusion transfer image, which includes a first dimensionally stable layer; a photosensitive silver halide layer having associated dye image-forming material which is soluble and diffusible, in alkali, at a first pH, as a function of photoexposure of the silver halide layer; a polymeric layer dyeable by the dye image-forming material; a second dimensionally stable layer transparent to incident actinic radiation; and a particulate dispersion of acid material, disposed in an alkaline processing composition permeable layer of the film unit, in a concentration effective to reduce, subsequent to substantial dye transfer image formation, a selected alkaline processing composition possessing the first pH to a second pH at which the dye image-forming material is substantially nondiffusible.

radical of 12 to 30 carbon atoms; and M is hydrogen, alkali metal or ammonium group. This photographic material when subject to light exposure followed by color development can form magenta color negative image or yellow color positive image both of which are excellent in spectral absorption characteristics. The yellow color positive image has good color stability (no color change and no fading) during the color development and subsequent processing.

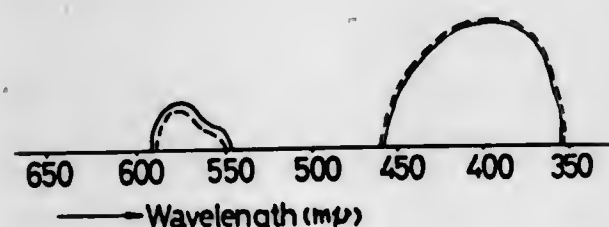
3,576,636
LIGHT-SENSITIVE SILVER HALIDE DIRECT-POSITIVE PHOTOGRAPHIC EMULSION
Kazuo Matsui, Tokyo, and Hajime Komatsu, Odawara-shi, Japan, assignors to Konishiroku Photo Industry Co., Ltd.

Filed Dec. 16, 1968, Ser. No. 784,103
Claims priority, application Japan, Dec. 23, 1967, 42/82,310

Int. Cl. G03c 1/40

U.S. Cl. 96—100

5 Claims



The emulsion contains a sensitizing dye, at least one coupler selected from the group consisting of magenta, yellow and cyan couplers, and a rhodium compound. Fogging is inhibited, sensitivity to light of long wavelength is increased and reversal speed is increased. Additionally, white background dye staining is suppressed.

3,576,637
LITH-TYPE OF EMULSION CONTAINING PYRAZOLONE
Tuneo Suga, Akio Oshima, and Yuji Kuroda, Tokyo, Japan, assignors to Konishiroku Photo Industry Co., Ltd.

No Drawing. Filed Apr. 15, 1968, Ser. No. 721,175
Claims priority, application Japan, Apr. 20, 1967, 42/24,781

Int. Cl. G03c 1/06

U.S. Cl. 96—95 2 Claims
A Lith-Type emulsion which has improved contrast and halftone dot quality. A pyrazolone compound is incorporated with an alkylene oxide in a silver halide emulsion.

3,576,638
HIGH MOLECULAR WEIGHT, LONG CHAIN TETRAZOLE-CONTAINING POLYMERS FOR ANTIFOGGING USE IN PHOTOGRAPHIC ELEMENTS

Richard C. Tuites, Thomas E. Whiteley, and Louis M. Minsk, Rochester, N.Y., assignors to Eastman Kodak Company, Rochester, N.Y.

No Drawing. Filed Oct. 9, 1967, Ser. No. 673,914
Int. Cl. G03c 1/34

U.S. Cl. 96—109 14 Claims
Novel, high molecular weight long-chain polymers comprising recurring tetrazole moieties incorporated into the polymer chain or appended from the polymer backbone are disclosed as having antifoggant and emulsion stabilization use. A photographic silver halide emulsion and a photographic element comprising said emulsion each comprising said high molecular polymers in a concentration sufficient to fog stabilize and protect said emulsion are disclosed.

3,576,639
SILVER HALIDE EMULSIONS SENSITIZED WITH TRINUCLEAR COMPLEX MEROCYANINE DYES CONTAINING A 2-IMIDAZOLIN-4-ONE NUCLEUS

Phillip W. Jenkins, Rochester, N.Y., assignor to Eastman Kodak Company, Rochester, N.Y.

No Drawing. Filed July 31, 1967, Ser. No. 657,082
Int. Cl. G03c 1/08

U.S. Cl. 96—127 12 Claims
Trinuclear complex merocyanine dyes derived from 2-imidazolin-4-ones, 2-imidazolin-4-thiones and 2-imidazolin-4-selenones are used advantageously as spectral sensitizing dyes in photographic image-forming materials.

3,576,640
PHOTOGRAPHIC ELEMENTS CONTAINING A METHINE DYE DERIVED FROM 1-ALKYL-3-ALKYL-8-ALKYL-9-ALKYLXANTHINE

Earl J. Van Lare and Leslie G. S. Brooker, Rochester, N.Y., assignors to Eastman Kodak Company, Rochester, N.Y.

No Drawing. Filed Nov. 6, 1967, Ser. No. 680,974
Int. Cl. G03c 1/12

U.S. Cl. 96—130 10 Claims
Methine dyes derived from 1-alkyl-3-alkyl-8-alkyl-9-alkylxanthine are advantageously used in photographic hydrophilic colloid layers as spectral sensitizers for silver halide and in hydrophilic colloid light filtering layers.

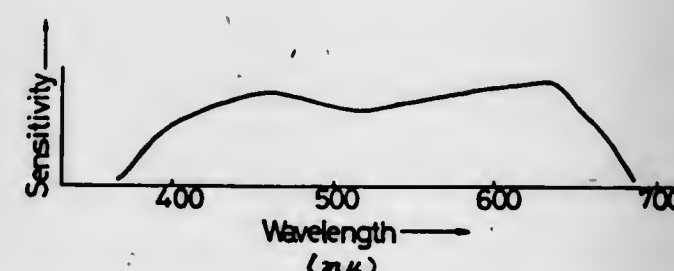
3,576,641
SENSITIZING DYES
Kaichiro Sakazume, Shigemasa Itoh, and Shui Sato, Tokyo, and Eichi Sakamoto, Hanno-shi, Japan, assignors to Konishiroku Photo Industry Co., Ltd.

Filed Dec. 10, 1968, Ser. No. 782,523
Claims priority, application Japan, Dec. 20, 1967, 42/81,158

Int. Cl. G03c 1/10

U.S. Cl. 96—130

5 Claims



Silver halide photographic emulsions containing a sensitizing cyanine dye having a 2-(2-hydroxy-3-sulfopropoxy)ethyl group.

3,576,642
NPN-COMPOSITION FOR RUMINANT ANIMALS
Andrew Cochran Currie, Largs, and Norman Macdonald Morss and Ian Thomson, West Kilbride, Scotland, assignors to Imperial Chemical Industries Limited, London, England

No Drawing. Filed May 13, 1968, Ser. No. 728,826
Claims priority, application Great Britain, May 19, 1967, 23,472/67

Int. Cl. A23k 1/00

U.S. Cl. 99—2 3 Claims
Non-protein nitrogenous compositions having a greatly reduced rate of solution, are produced by adding sodium carboxymethyl cellulose. Increased amounts of these may be used more safely and efficiently in animal foodstuffs.

3,576,643
METHOD OF CULTURING FISH AND CRUSTACEA LARVAE

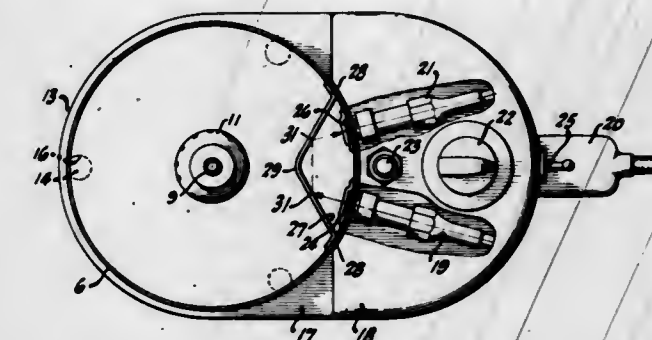
Yaichi Ayukawa, 1168 Okamotocho, Setagayaku; Uhei Naruse, 1-3-1 Tamagawacho, Akishi-mashi; Tadayoshi Itoh, 3-24-10 Haneda, Ohtaku; and Tsuneaki Miyakawa, 1-10-31 Kichijoji, Musashinoshi, all of Tokyo, Japan

No Drawing. Filed Mar. 28, 1969, Ser. No. 811,636
Int. Cl. A23k 1/00; A23j 1/18

U.S. Cl. 99—2 12 Claims

Covers a feed useful in culturing larval fish and crustacea which comprises a combination of starch and an extract of yeast, derived by treating yeast with ammonia or a similar basic substance, said feed acting as a means of culturing zooplankton which are assimilated by said larval fish and crustacea. Also covers a method of culturing larval fish and crustacea by supplying the above feed to the aqueous environment in which the larvae reside.

of the coffee to a photo-sensitive detecting device connected to circuitry which turns off the heat to the pot



when the strength of the coffee, as measured by the opacity thereof, reaches a desired level.

3,576,647
PREPARATION OF CHIP-TYPE PRODUCTS
Alexander L. Liepa, Cincinnati, Ohio, assignor to The Procter & Gamble Company, Cincinnati, Ohio
Continuation of application Ser. No. 683,083, Oct. 31, 1967, which is a continuation-in-part of application Ser. No. 569,278, Aug. 1, 1966. This application Oct. 7, 1969, Ser. No. 865,339

Int. Cl. A23i 1/12 9 Claims

U.S. Cl. 99—100 9 Claims
Method and apparatus for continuously preparing fried products from a sheet of edible dough including an infed conveyor to carry the sheet of dough; a cutter for cutting pieces the desired size from the sheet; a shaper-molder utilizing movable, apertured mold halves to shape the cut pieces to the desired surface conformation and hold them during subsequent processing; and a reservoir containing a frying medium through which the shaped, restrained pieces are passed until they are fried to a crisp state. The fried objects assume a final shape defined by the shaper-molder.

3,576,648
NON-DAIRY FROZEN COMESTIBLE AND METHOD OF PRODUCING SAME
Abraham H. Goodman, Great Neck, and Louis Ng, Brooklyn, N.Y., assignors to DCA Food Industries, Inc., New York, N.Y.

Filed Mar. 18, 1968, Ser. No. 713,810
The portion of the term of the patent subsequent to Apr. 16, 1985, has been disclaimed

Int. Cl. A23q 5/00

U.S. Cl. 99—136 22 Claims
A frozen comestible comprising an aqueous admixture of a first fraction and a second fraction. The first fraction serves as a matrix for the second fraction and the second fraction includes a relatively coarse particulate prebaked farinaceous product. The resulting comestible has the texture, appearance and palatability of frozen baked cake. The comestible may be manufactured with substantially conventional equipment used for making ice cream.

3,576,649
PLASTIC PACKAGE FOR ELECTRICALLY NON-CONDUCTIVE MATERIAL
Irvin L. Brazier, West Milwaukee, Wis., assignor to Milprint, Inc., Milwaukee, Wis.

Filed Feb. 25, 1969, Ser. No. 802,002
Int. Cl. A23f 1/00

U.S. Cl. 99—152 8 Claims
A package for electrically non-conductive pulverulent material. The package has an inner layer of heat sealable ethylene polymer to which is added a fatty acid amide in a quantity such that the pulverulent material being packaged will not be attracted to film areas that are to be heat

3,576,644
DRY ALCOHOLIC BEVERAGE FORMING COMPOUND

John E. Anderson, Clyde E. Parish, and George H. Ross, Houston, Tex., assignors to Signal Chemical Company

No Drawing. Original application Dec. 20, 1965, Ser. No. 515,194, now Patent No. 3,445,497, dated May 20, 1969. Divided and this application Jan. 27, 1969, Ser. No. 807,156

Int. Cl. C12g 3/00 2 Claims

U.S. Cl. 99—30 2 Claims
A dry alcoholic beverage forming composition is contained within a liquid permeable enclosure. The composition comprises a dry particulate alkyl carbonate of calcium and a water dispersible acidic flavoring agent.

3,576,645
BREWING ADJUNCT AND BREWING PROCESS

Tibor A. Rozsa, Winona, Minn., assignor to Bay State Milling Company, Winona, Minn.

No Drawing. Continuation of application Ser. No. 504,152, Oct. 23, 1965. This application Mar. 21, 1969, Ser. No. 810,915

Int. Cl. C12c 7/00, 11/00 12 Claims

U.S. Cl. 99—31 12 Claims
Cereal grains such as rye, barley, wheat, corn, milo, sorghum or any combination thereof are steeped in water at a temperature sufficient to pass the grain through the optimum conditions in which the natural enzymes therein can operate to change insoluble protein and pentosans to soluble protein and pentosans, the cereal grains are then cooked or pregelatinized at a temperature in the range of 200° F. to 220° F. for five to thirty minutes, after which the grain is dried at a temperature in the range of 110° F. to 220° F. until the moisture content is in the range of 7% to 11% to inactivate the enzymes so that the pregelatinized grain can be stored, and the grain is then granulated.

3,576,646
METHOD AND APPARATUS FOR MAKING COFFEE

Melvin G. Alwood, 733 Butte St., Redding, Calif. 96001
Filed July 15, 1968, Ser. No. 745,018

Int. Cl. A23f 1/08 7 Claims

U.S. Cl. 99—71 7 Claims
In a pot in which coffee is brewed to any desired strength by the continued application of heat thereto, a beam of light is passed through a representative portion

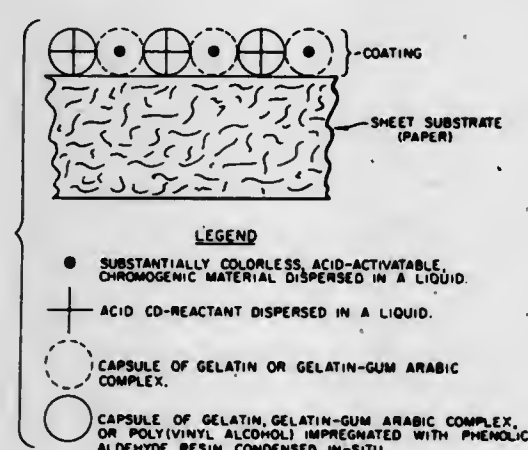
ether of a methylated 2,4,6-trimethylol phenol, and 0.5 to 5.0% butylated melamine formaldehyde, and in a second area contiguous with the first area with alkyl-butylated amino resin composition. The coated surfaces are baked at about 450° F. for about 15 minutes.

3,576,660 PRESSURE-SENSITIVE RECORD SHEET AND COATING COMPOSITION

Robert G. Bayless, Yellow Springs, and David J. Striley, Centerville, Ohio, assignors to The National Cash Register Company, Dayton, Ohio
Filed July 11, 1968, Ser. No. 744,195
Int. Cl. B41m 5/16

U.S. Cl. 117—36.8

8 Claims



A superior pressure-sensitive record sheet and an aqueous, record-sheet-coating liquid slurry composition of 10% to 30% solids, by weight, for use in its production are provided, wherein said solids of the composition comprise minute, pressure-rupturable capsules of at least two different kinds, distinguished both by their contents and by their wall materials, one kind of capsule having walls of gelatin, gelatin-gum arabic complex, or equivalent, and containing a substantially colorless, acid-activatable, chromogenic co-reactant, such as Crystal Violet Lactone, dispersed in an oil, and another kind having walls made impervious to liquid diffusion, such as those of gelatin, gelatin-gum arabic complex, or poly(vinyl alcohol), having walls that have been impregnated, in situ, with a phenolic-aldehyde resin and containing an organic, polymeric, acidic co-reactant dispersed in an oil, so that, when a continuous web or support material is thinly coated with said slurry composition and allowed to dry, a record sheet is produced having on at least one of its surfaces a thin coat of interspersed, contiguously juxtaposed, minute capsules which, when subjected to marking pressures, will rupture in areas to which the pressures are applied, to bring their liquid contents into intimate contact, this contact causing the immediate production of a distinctively colored and lasting mark on said record sheet by the acid-base, color-producing reaction of the above-described co-reactants.

There has been an existing problem in incorporating, in an aqueous medium, capsules having walls of hydrophilic, polymeric material, in that the contents of the capsules tend to escape by diffusion through the capsule walls. The use of capsules having walls made impervious by in-situ impregnation with a phenolic-aldehyde resin prevents this diffusion through the walls in aqueous media, but the formation of such in-situ-impregnated capsules is commonly and advantageously carried out in the presence of acids, so that chromogenic materials, which normally are in a colorless form and are changed to a colored form by acids, cannot be used effectively as the contents of such impregnated capsules. The use of such impreg-

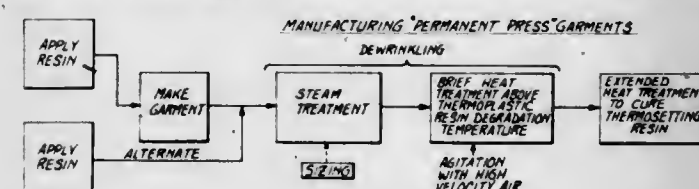
nated capsules, however, in encapsulating the acidic co-reactant which colors the chromogenic material is possible and will substantially prevent premature coloration of an aqueous slurry containing, in interspersed, the impregnated capsules with acidic contents and capsules of hydrophilic, polymeric material walls containing the chromogenic material. For the first time, an aqueous composition containing capsules which contain the two kinds of co-reactants described has been made that will not prematurely color on long standing and which can be used to produce a record sheet material stable against the effects of moderate pressure, moisture, and water vapor.

3,576,661 PROCESS AND SYSTEM FOR DEWRINKLING GARMENTS

John W. Dekoekkoek, Seattle, Wash., assignor to Western Automation Corporation, Seattle, Wash.
Filed Aug. 11, 1969, Ser. No. 848,960
Int. Cl. B08b 7/04; B44d 1/48

U.S. Cl. 117—62

18 Claims



Wrinkles are removed from presteamed garments by a brief heat treatment at a temperature above the softening temperature of the contained thermoplastic resin for a time less than required to substantially degrade the resin, and in the presence of high velocity, e.g., 1400–2000 feet per minute, downwardly directed air. The steaming and heat treatment typically can be carried out in equipment such as disclosed in U.S. Pat. No. 2,911,729. The dewrinkling technique is also useful in the process of manufacturing "permanent press" garments with thermosetting resin in which the thermosetting resin is applied to the fabric either prior to or after being made into a garment but is left in an uncured condition until dewrinkled as above. After dewrinkling the garments are treated at a sufficient temperature and time to set the resins. Laundered garments are dewrinkled by first preconditioning them. The preconditioning typically includes laundering at about 110 to 190° F., then gradually cooling about six minutes, then spin drying about three to five minutes. The garments are then dewrinkled by the above process, for a slightly longer period due to the presence of moisture in the garments, or may be predried prior to being treated by the above dewrinkling process by drying at about 130° F. for six minutes and then gradually cooling to about room temperature.

3,576,662 METALLIZING PLASTICS SURFACES

Adolf Diebold, Siegfried Marquardt, and Ludwig Doerr, Ludwigshafen (Rhine), and Ludwig Raichle, Limburgerhof Pfalz, Germany, assignors to Badische Anilin- & Soda-Fabrik Aktiengesellschaft, Ludwigshafen (Rhine), Germany

No Drawing. Continuation of application Ser. No. 565,684, July 18, 1966. This application Aug. 1, 1969, Ser. No. 849,576
Claims priority, application Germany, July 16, 1965, P 15 21 152.6
Int. Cl. B44d 1/16

U.S. Cl. 117—71

5 Claims

A method for metallizing plastics surfaces by coating said surfaces with a thin layer of iron particles having a mean particle size of about 0.1 to 1 micron finely dispersed in a polyurethane binder, drying and treating the layer with an acidic aqueous solution of a salt of copper or silver.

3,576,663 COATED TABLET

Charles A. Signorino, King of Prussia, and Thomas E. Jamison, Philadelphia, Pa., assignors to Colorcon Incorporated, West Point, Pa.
No Drawing. Original application May 29, 1967, Ser. No. 642,190, now Patent No. 3,524,756, dated Aug. 18, 1970. Divided and this application Dec. 18, 1969, Ser. No. 886,348
Int. Cl. A61k 9/00; B44d 1/14

U.S. Cl. 117—72

10 Claims

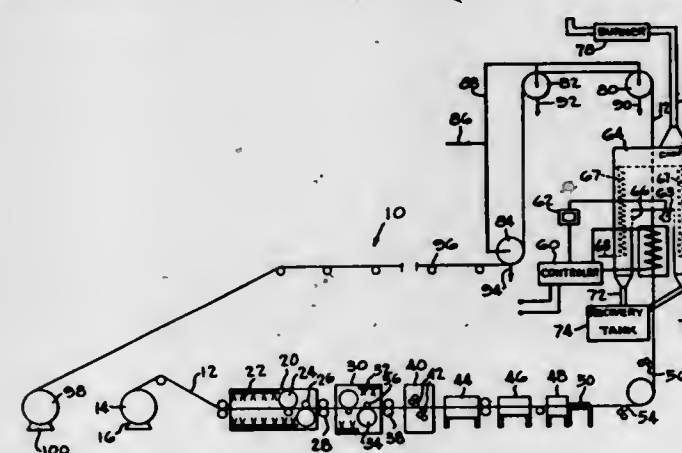
Coated tablets with alternate layers made from a liquid suspension of tacky material and the other layers made from an aqueous suspension of non-tacky material wherein the tacky material is shellac, zein or gum arabic and the non-tacky material is sugar.

3,576,664 METHOD FOR COATING METAL STRIPS

Le Roy O. Swartz, Cornwells Heights, Pa., assignor to Cornwells Metal Finishing Company, Inc., Cornwells Heights, Pa.
Original application Sept. 10, 1968, Ser. No. 758,896. Divided and this application June 17, 1970, Ser. No. 47,075
Int. Cl. B44d 1/46; F26b 3/34; H05b 5/00

U.S. Cl. 117—93.2

3 Claims



A process for applying a coating to a metal strip where-by the metal strip is first pre-treated to condition it for application of the coating, after which the coating is applied to either one or both sides of the strip. Thereafter, the coated strip passes through a heating station where it is heated by means of electromagnetic induction. A hood surrounds the induction heating means so that the vaporized solvents and other fumes are prevented from passing into the atmosphere and over the coated metal strip downstream of the heating station. A hood is provided with condensing means to condense the vaporized solvents and to permit recovery of the condensed solvents, and is also provided with an afterburner to burn up any uncondensed vapors or gases to prevent contamination of the atmosphere. A series of cooled rollers are provided downstream of the heating means to not only act as conveyors for the strip, but also as progressive cooling means to complete the cure of the coating.

3,576,665 METHOD FOR APPLYING HIGH LUSTER COATING TO TABLETS

Allan H. Cheiken, Elkins Park, and Joseph F. Bavitz, Willow Grove, Pa., assignors to Merck & Co., Inc., Rahway, N.J.
No Drawing. Filed July 1, 1968, Ser. No. 741,274
Int. Cl. B44d 1/02; A61k 9/00

U.S. Cl. 117—100

1 Claim

A method of imparting a high luster coating to ingestible tablets is carried out by coating with a liquid composition which is 30–40% powdered carnauba wax, 10–20% wax white and 40–60% methylchloroform or petroleum benzine.

3,576,666 COATED REFRACTORY STRUCTURAL MEMBERS

Ivan B. Cutler, 4036 Golden Circle, Salt Lake City, Utah 84117
No Drawing. Continuation-in-part of application Ser. No. 513,554, Dec. 13, 1965. This application May 5, 1969, Ser. No. 821,979
Int. Cl. C04b 41/06

U.S. Cl. 117—106

11 Claims

This invention relates to a novel refractory structural member such as a refractory brick or block, referred to hereinafter as a brick, that is protected from hydration by means of subjecting the brick to an environment of an elevated temperature and a reactive gas phase for a predetermined period of time to thus form a protective coating on the brick.

3,576,667 PORCELAIN ENAMELS FOR SELF-CLEANING COOKING OVEN

William S. Lee, Bay Village, Ohio, assignor to Ferro Corporation, Cleveland, Ohio
No Drawing. Original application Mar. 22, 1968, Ser. No. 715,186, now Patent No. 3,547,098, dated Dec. 17, 1970. Divided and this application Dec. 23, 1968, Ser. No. 840,858
Int. Cl. B44c 1/06, 1/00

U.S. Cl. 117—129

2 Claims

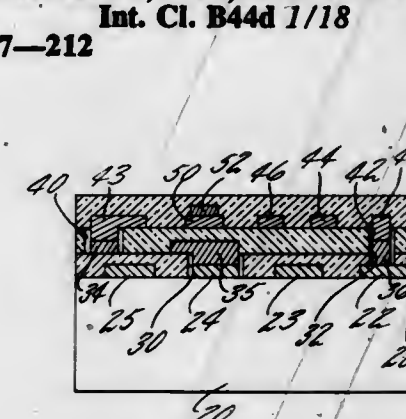
A porcelain enamel frit containing a high level of an oxidation inducing metal oxide, preferably cobalt, adaptable to be incorporated into a vitreous porcelain enamel for application to an oven liner, said enamel characterized by the ability to completely oxidize oven soils when heated to a point above 350° F., but below 600° F., and method of utilizing same as a self-cleaning oven liner coating.

3,576,668 MULTILAYER THICK FILM CERAMIC HYBRID INTEGRATED CIRCUIT

Henry Fenster, Wyndmoor, and Jack D. Dale, Warminster, Pa., assignors to United Aircraft Corporation, East Hartford, Conn.
Filed June 7, 1968, Ser. No. 735,279
Int. Cl. B44d 1/18

U.S. Cl. 117—212

3 Claims



Multiple layers of printed conductors are interleaved with layers of printed glassy insulator (or dielectric) so as to provide a greatly expanded circuit capability on a single substrate.

3,576,669 METHOD FOR COATING THROUGH-HOLES

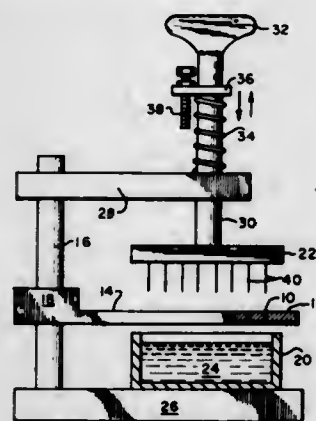
George L. Filip, Madison, Ala., assignor to the United States of America as represented by the Administrator of the National Aeronautics and Space Administration
Filed Aug. 15, 1968, Ser. No. 752,946
Int. Cl. H05k 3/00; B44d 1/18

U.S. Cl. 117—212

2 Claims

Through-holes in a ceramic substrate are given a conductive coating of a liquid metal mixture by immersing a plurality of spaced rods in a coating material; withdrawing the rods with globules of the mixture clinging to the rods; passing the rods through like spaced holes in a

substrate and back into the coating material so to deposit the coating material on one side of the substrate. The rods are then withdrawn from the coating material with



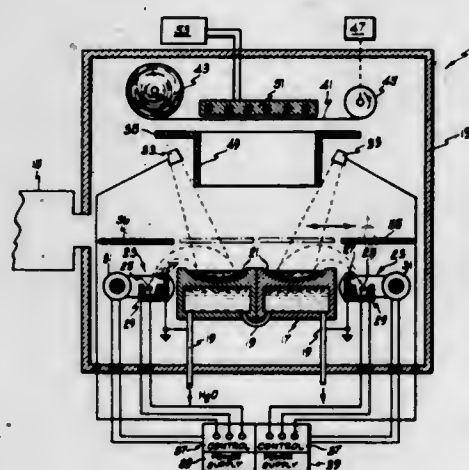
clinging globules of coating materials and the other side of the substrate is coated as the pins pass through the through-holes in the substrate.

3,576,680 METHOD FOR MAKING A SUPERCONDUCTING MATERIAL

Robert H. Hammond, Berkeley, Calif., assignor to Gulf Energy & Environmental Systems, Inc., San Diego, Calif.
Original application Jan. 28, 1966, Ser. No. 535,284.
Divided and this application Feb. 19, 1969, Ser. No. 800,616

Int. Cl. B44d 1/18
U.S. Cl. 117-217

6 Claims



A method of making an improved superconductive material is provided in which a thin layer of a first material having superconductive properties is deposited on a substrate. Deposition of the first material is intermittently halted and a layer of a second material having non-superconductive properties is deposited to form a composite material of alternating layer construction. The non-superconductive material is deposited so that the layers of it are substantially thinner than the superconductive layers.

3,576,671 METHOD OF MAKING A CATHODE FLUORESCENT LAMP

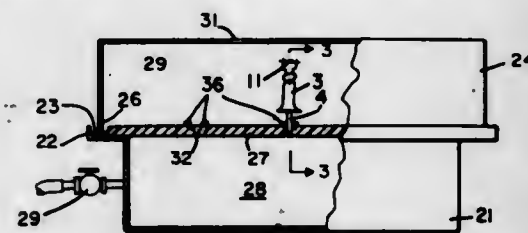
Charles L. Toomey, Danvers, and Gerald D. Butler, Beverly, Mass., assignors to Sylvania Electric Products Inc.
Original application July 5, 1966, Ser. No. 562,736.
Divided and this application May 27, 1968, Ser. No. 739,942

Int. Cl. B32b 21/26; H01j 9/12
U.S. Cl. 117-219

7 Claims

During the process of heating a fluorescent lamp tungsten wire cathode and reducing its alkaline earth carbonate to the corresponding oxide, a flow of nitrogen or

other inert gas is maintained past the cathode, the flow of inert gas being controlled at a slow rate which maintains an atmosphere of carbon dioxide adjacent the cathode



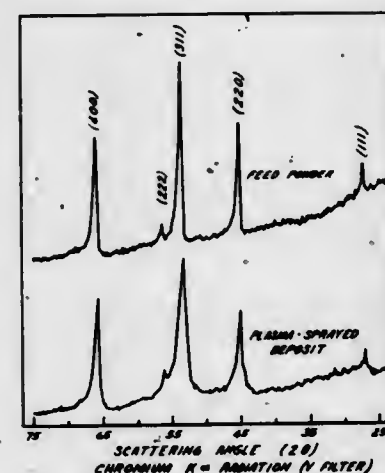
so as to produce a barrier layer of tungsten compound between the tungsten wire and barium oxide and inhibiting the release of free barium.

3,576,672 METHOD OF PLASMA SPRAYING FERRITE COATINGS AND COATINGS THUS APPLIED

Douglas H. Harris and Richard J. Janowiecki, Dayton, Ohio, assignors to Monsanto Research Corporation, St. Louis, Mo.
Continuation-in-part of application Ser. No. 529,281, Feb. 23, 1966. This application June 12, 1969, Ser. No. 833,896

Int. Cl. B05b 7/22
U.S. Cl. 117-235

52 Claims



Process for depositing ferrite coatings of preferred orientation and controlled quality by using a direct current arc plasma generator to heat powdered ferrites under prescribed conditions, said coatings having useful magnetic properties.

3,576,673 METHOD FOR PAINT STRIPPING

Harry R. Charles, Troy, and Roy Trudell, Pontiac, Mich., assignors to Chemfil Miles Chemical & Filter Company, Inc., Troy, Mich.
No Drawing. Continuation-in-part of application Ser. No. 686,721, Nov. 29, 1967. This application May 7, 1970, Ser. No. 35,555

Int. Cl. C09d 9/04; C23g 1/14

U.S. Cl. 134-38

1 Claim

A method for paint stripping employing a hot water bath and a liquid concentrate generally including sodium hydroxide, an accelerator, and a co-solvent.

3,576,674 LEAD PEROXIDE-SULFURIC ACID CELL

Samuel Ruben, 52 Seacord Road, New Rochelle, N.Y. 10801

Continuation-in-part of applications Ser. No. 758,274, Sept. 9, 1968, and Ser. No. 800,078, Feb. 18, 1969. This application Oct. 21, 1969, Ser. No. 868,133

Int. Cl. H01m 39/00

U.S. Cl. 136-26

8 Claims

The invention is a lead peroxide-sulfuric acid cell in which the positive electrode comprises titanium nitride

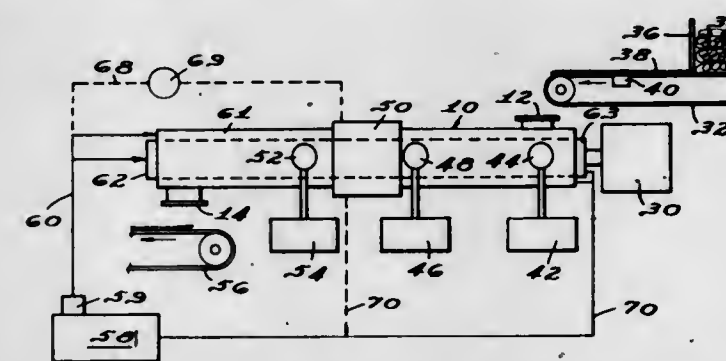
having a thin film of a nonpolarizing material and coated with a mixture of lead peroxide containing a small fractional part of lead phosphate. The negative electrode comprises an active porous lead surface. The electrolyte is sulfuric acid, which may be gelled.

3,576,675 CONTINUOUS MIXING OF BATTERY PASTE

Jay J. Abramson, Southfield, and Allan B. Rosser, Ann Arbor, Mich., assignors to Ford Motor Company, Dearborn, Mich.
Filed Dec. 11, 1968, Ser. No. 782,947

Int. Cl. H01m 39/00
U.S. Cl. 136-27

9 Claims



Particulate lead oxide is dropped into one end of an elongated housing that contains rotating mixing paddles. Water is injected into the housing at approximately the same location. The paddles mix the water with the lead oxide while moving the mixture toward the exit end of the housing. Sulfuric acid is injected into the housing at a downstream location where the water and lead oxide have been mixed thoroughly. Other ingredients can be injected into the mixture at those locations conducive to continuous production of battery paste having uniform physical and chemical properties.

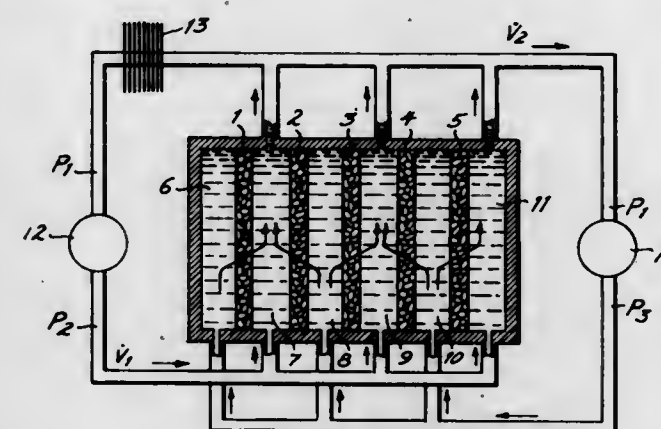
3,576,676 GALVANIC FUEL CELL BATTERY AND PROCESS

Ralf Wendtland, Fischbach, Taunus, and August Winsel, Kelkheim, Taunus, Germany, assignors to Siemens Aktiengesellschaft, Berlin and Munich, and Varta Aktiengesellschaft, Frankfurt am Main, Germany
Continuation-in-part of application Ser. No. 545,986, Apr. 28, 1966. This application Dec. 20, 1966, Ser. No. 603,311

Claims priority, application Germany, Dec. 23, 1965, S 101,132
Int. Cl. H01m 27/00

U.S. Cl. 136-86

16 Claims



A process for controlling the heat of reaction and the concentration polarization during an electrochemical process which involves maintaining two currents of electrolyte flow through pairs of electrolyte chambers maintained at different pressures. A portion of the electrolyte flows through the electrodes and out of a low pressure

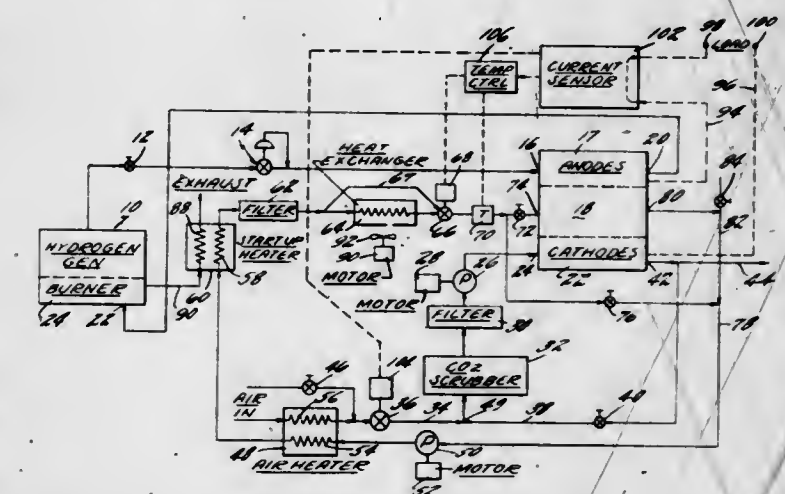
electrolyte chamber and another portion of electrolyte flows directly into said chamber and out therefrom. The battery for operating said process.

3,576,677 FUEL CELL PROCESS AIR CONTROL

Stephen J. Keating, Jr., West Hartford, and Richard D. Sawyer, Canton, Conn., assignors to United Aircraft Corporation, East Hartford, Conn.
Continuation of application Ser. No. 640,648, May 23, 1967. This application Oct. 9, 1969, Ser. No. 866,132

Int. Cl. H01m 27/14
U.S. Cl. 136-86

4 Claims



The air supply which provides oxygen to the cathode of a fuel cell utilizing an aqueous potassium hydroxide electrolyte includes a constant volume output pump which is fed by a portion of the partially expended air exhausting from the cathode and also draws air from the atmosphere through a valve which increases atmospheric air flow in response to increasing fuel cell powerplant load current, thereby to provide increased oxygen content and decreased water vapor pressure to the process air in response to increasing current loads.

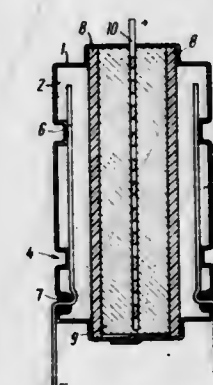
3,576,678 ALKALINE GALVANIC CELL

Meer Danilovich Kocherginsky, Ul. Komarova 6, kv. 23, Moscow, U.S.S.R.; Sergel Leonidovich Kalachev, St. Taininskaya, 1 Kalininskay per 6-a, Moskovskaya, Oblast, U.S.S.R.; and Lidia Fedorovna Penkova, 3 Mytischinskaya, ul. 14-a, kv. 124, and Viktor Arsenievich Naumenko, Novoslobodskaya ul. 62, kv. 64, both of Moscow, U.S.S.R.; and Kasym Nurullovich Gilmanov, Ul. A. Galterovoi 14, Elets Lipetskoi Oblasti, U.S.S.R.

Filed Feb. 24, 1969, Ser. No. 801,448
Claims priority, application U.S.S.R., Apr. 29, 1968, 1,235,791

Int. Cl. H01m 21/00
U.S. Cl. 136-107

6 Claims



An alkaline flat-type cylindrical galvanic cell of a manganese-zinc system comprises electrodes arranged in parallel to each other in two plastic envelopes whose portions

accommodate negative cylindrical electrodes. The envelopes are drawn together by a bandage and include masses and as a result said galvanic cell has a substantially cylindrical shape. The galvanic cell is made without sealing elements and the galvanic cell outer casing is made of paper.

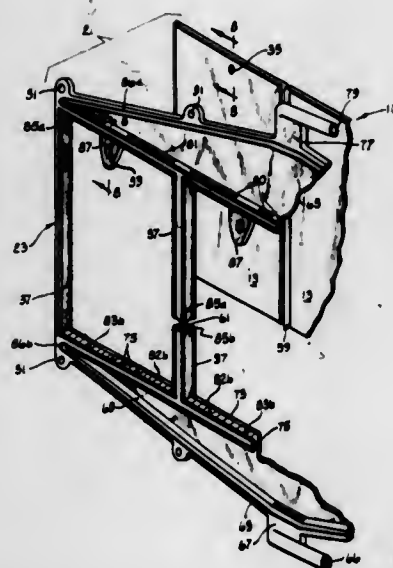
3,576,679

ELECTRODE ASSEMBLY

Paul R. Shipps, El Cajon, Calif., assignor to Gulf Energy & Environmental Systems, Inc., San Diego, Calif.
Filed Feb. 1, 1967, Ser. No. 613,180
Int. Cl. H01m 13/00

U.S. Cl. 136—120

7 Claims



The disclosure shows a thin electrode assembly for a storage battery or fuel cell using a gaseous reactant and a liquid electrolyte. A storage battery cell stack employs several electrode assemblies each constructed of a thin plate porous to the gaseous reactant which plate is connected mechanically and electrically at a plurality of points across its surface to a very thin metal plate that is deformed to provide a gas plenum chamber between the two plates. The exposed surface of the deformed plate is used as a substrate to support a deposit of an electro-positive material, like zinc, for the anode of the next cell in the cell stack.

3,576,680
DRY CELL

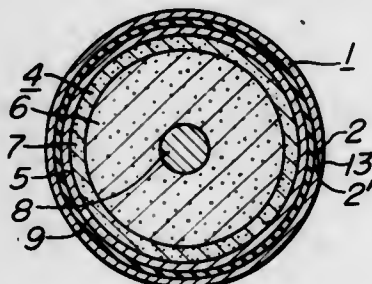
Jun Watanabe, Kobe, Akira Fujiwara and Masahiro Kuwazaki, Moriguchi, and Tadashi Sawai, Kyoto, Japan, assignors to Matsushita Electric Industrial Co., Ltd., Osaka, Japan

Continuation of application Ser. No. 659,635, Aug. 10, 1967. This application Mar. 12, 1970, Ser. No. 18,011
Claims priority, application Japan, Aug. 16, 1966, 41/54,309

Int. Cl. H01m 1/02

U.S. Cl. 136—132

1 Claim



A dry cell in which an elementary cell is housed in an outer casing whose adjoining edges are fastened together by means of an adhesive, and which has a high discharge efficiency and improved leakage proof.

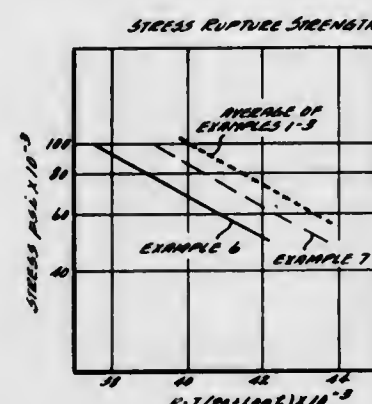
3,576,681
WROUGHT NICKEL BASE ALLOY ARTICLE
James F. Barker, Eugene L. Dunn, Stanley F. Sternasty, and Carl S. Wukusick, Cincinnati, Ohio, assignors to General Electric Company

Filed Mar. 26, 1969, Ser. No. 810,611

Int. Cl. C22c 19/00

U.S. Cl. 148—32

5 Claims



A wrought, ductile nickel base superalloy article allows inclusion of relatively large amounts each of the gamma prime strengtheners Al, Ti and Cb, for example in combination by weight, 3-4% Al, 2-3.5% Ti and 3-5% Cb, while maintaining improved tensile ductility and creep rupture strength through a processing procedure employing relatively low temperature solutioning, and preferably a preliminary aging prior to solutioning.

3,576,682

METHOD OF MAKING COMPLEMENTARY TRANSISTORS IN MONOLITHIC INTEGRATED CIRCUIT

Jean-Claude Frouin and Michel de Brebisson, Caen, France, assignors to U.S. Philips Corporation, New York, N.Y.

Filed Feb. 5, 1968, Ser. No. 703,024

Claims priority, application France, Feb. 7, 1967, 93,983

Int. Cl. H01l 7/64

U.S. Cl. 148—175

7 Claims

A method is described of making a monolithic IC with complementary transistors wherein the p-emitter of the pnp transistor is diffused simultaneously with the p-isolation walls, followed by simultaneous diffusion of the p-base of the npn transistor and the p-collector of the pnp transistor, followed by simultaneous diffusion of the n-emitter for the npn transistor and the n-contact regions for the npn-collector and the pnp-base.

3,576,683

TRANSISTOR STRUCTURE WITH THIN, VAPOR-GROWN BASE LAYER

Osamu Matsubara, Kanagawa-ken, Japan, assignor to Sony Corporation, Tokyo, Japan

Filed Apr. 4, 1968, Ser. No. 718,659

Claims priority, application Japan, Apr. 7, 1967, 42/22,214, 42/22,216

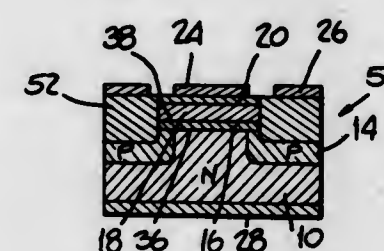
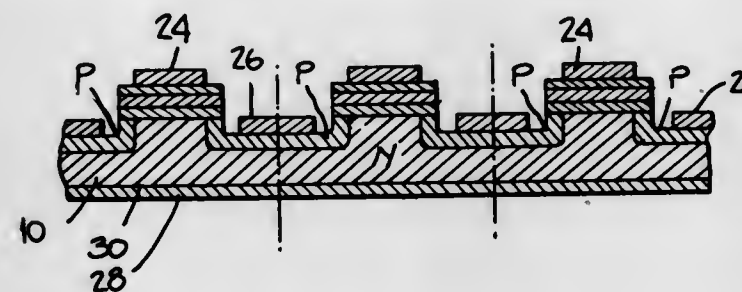
Int. Cl. H01l 7/36, 5/00

U.S. Cl. 148—175

8 Claims

By this invention are provided new and improved semiconductor devices, and a method of manufacturing the same, in which the base region of the semiconductor device is constituted by an extremely thin, vapor-grown base layer with significantly enhanced current amplification h_{FE} , and by a substantially thicker base portion to

which an electrical lead may be readily connected, and in which the said semiconductor devices have at least dopant material and depositing the elemental dopant material upon the semiconductor surface.



two semiconductor regions thereof formed by the vapor growth technique.

3,576,684

ALUMINUM-ALLOY JUNCTION DEVICES USING SILICON NITRIDE AS A MASK

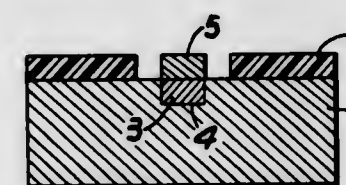
Rajendra R. Mehta, Mountain View, Calif., Richard G. Swann, North Palm Beach, Fla., and Thomas P. Cauge, Mountain View, Calif., assignors to International Telephone and Telegraph Corporation, Nutley, N.J.

Filed Aug. 12, 1968, Ser. No. 752,062

Int. Cl. H01l 7/46

U.S. Cl. 148—179

9 Claims



This is an improved method of manufacturing semiconductor devices, in particular low voltage Zener diodes, having aluminum-alloy pn-junctions. The improvement in manufacture results from using silicon nitride instead of silicon dioxide to passivate and mask the surface of a wafer, silicon nitride being impervious to aluminum whereas silicon dioxide tends to interact with aluminum at temperatures where alloying is performed in a manner which is deleterious to the device. After silicon nitride is deposited on the wafer surface, windows are etched therein and aluminum is deposited over the entire surface. Since silicon nitride is impervious to aluminum, the aluminum can be alloyed into the substrate through the window without having to remove the aluminum from the surface of the silicon nitride.

3,576,685

DOPING SEMICONDUCTORS WITH ELEMENTAL DOPANT IMPURITY

Richard C. G. Swann, Palo Alto, and Thomas P. Cauge, Mountain View, Calif., assignors to International Telephone and Telegraph Corporation, Nutley, N.J.

Filed Mar. 15, 1968, Ser. No. 713,412

Int. Cl. H01l 7/36, 7/54

U.S. Cl. 148—187

8 Claims

This invention provides a method of doping semiconductor material by decomposing a compound of the

3,576,686

METHOD OF MAKING MICROPOROUS FILMS

Claude J. Schmidle, Hudson, and George Shkapenko, Akron, Ohio, assignors to The General Tire & Rubber Company

No. Drawing. Filed Sept. 18, 1968, Ser. No. 760,683

Int. Cl. B32b 5/18

A method of making a microporous film comprising admixing to a liquid plastisol-type resin a water-soluble material, that is soluble in the liquid plasticizer and a non-solvent for the polymer particles, casting a film therefrom, curing the film by applying sufficient heat to cause fusion between the polymer particles, and washing the water-soluble material from the film to create voids in the film for passage of moisture.

3,576,687

LUBRICATED NON-WOVEN FABRIC AND METHOD OF PRODUCING THE SAME

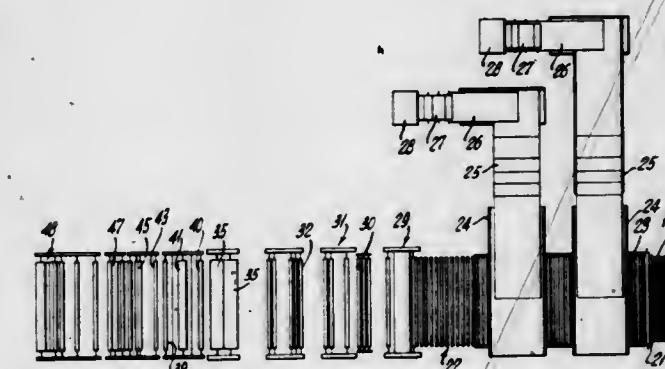
David B. Parlin, Thompsonville, Conn., assignor to Bigelow-Sanford, Inc., New York, N.Y.

Filed Mar. 14, 1968, Ser. No. 713,186

Int. Cl. D04h 18/00

U.S. Cl. 156—148

7 Claims



A needled non-woven fabric which comprises a needled web of crimped fibers of a synthetic thermoplastic material such as a polyolefin or a polypropylene. Said web and the fibers thereof being lubricated and including a series of lengthwise extending, spaced warp threads of a material such as cotton which are relatively inextensible in comparison with the needled web of fibers.

The thermoplastic fibers comprising the needled web being bonded or fused into engagement with each other on one or both exterior surfaces of the fabric. The fibers on one such surface also being bonded or fused into engagement with the warp threads. The remaining or interior fibers of the fabric being unfused and mobile or movable relative to each other.

The fibers of the needled fabric being lubricated with a lubricant such as coconut oil to increase the mobility of the unfused fibers and to reduce the noise resulting from tufting of the fabric. The lubricant also prevents overheating of the tufting needles.

Said needled and lubricated fabric is produced in a continuous manner by depositing fibers on a continuously moving band of spaced warp threads and then needling the layer of deposited fibers and the warp threads in a vertical direction relative to the thickness of the fabric. Then fusing the thermoplastic fibers on at least one exterior surface of the web of fibers into engagement with each other and with the warp threads without fusing the

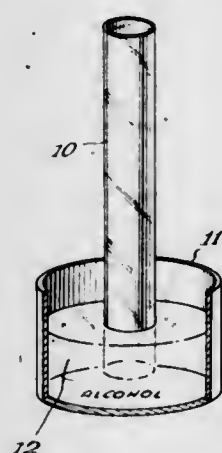
remaining or interior fibers of the web and then applying an aqueous solution containing a lubricant to at least one exterior surface of the web.

3,576,688 METHOD FOR HEAT SEALING SEMIPERMEABLE MEMBRANES

George B. Clark, Poway, Calif., and James A. Kavanagh, Waukesha, Wis., assignors to Aqua-Chem, Inc.
Original application May 24, 1967, Ser. No. 640,890, now Patent No. 3,430,360, dated Mar. 4, 1969. Divided and this application Oct. 7, 1968, Ser. No. 765,593
Int. Cl. B29c 17/00

U.S. Cl. 156—198

3 Claims



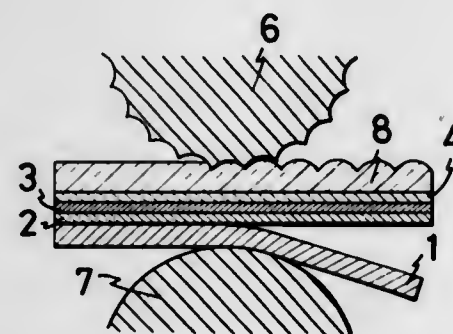
The invention relates to a demonstration or teaching device wherein a semipermeable membrane in the form of a tube is sealed within a plastic tube of larger diameter together with water. Integrally attached to the larger tube is a container for salt. The end of said larger tube may be removed exposing the open end of the membrane tube, and when the salt is dropped into the latter, the water level therein rises above the water level in the larger tube by reason of osmotic pressure until equilibrium is attained. The invention also relates to a method of heat sealing semipermeable membrane tubes by dipping the same in alcohol or other solvent which replaces the water in the areas to be sealed, and then by applying heat to said areas sealing may be effected.

3,576,689 METHOD FOR PRODUCING A PICTURE WITH A LENTICULAR SCREEN

Shoji Uraushihara, Tokyo, Japan, assignor to Toppan Printing Company, Limited, Tokyo, Japan
Filed Oct. 30, 1968, Ser. No. 771,932
Int. Cl. B32b 31/00

U.S. Cl. 156—219

6 Claims



A method for producing a stereoscopic or variable picture with a lenticular screen which consisting of applying

a coating layer on a base sheet, printing specific linear or dotted images on said coated base sheet, applying an adhesive layer on said printed base sheet, adhering said sheet onto the backside of a lenticular screen, and peeling off said base sheet from said coating layer, wherein the picture produced having characteristics that it is thin in the thickness, and the positioning of said printed images against the lenticular screen can be carried out easily and accurately.

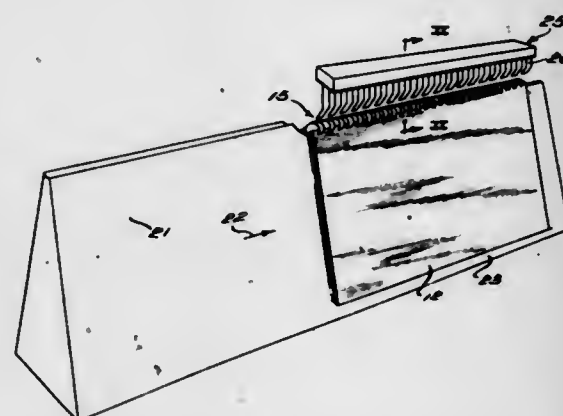
3,576,690 METHOD AND APPARATUS FOR SEALING BINDING USING ULTRASONIC OR RADIO FREQUENCIES

Henry N. Staats, Deerfield, Maurice D. Levitan, Wilmette, and Neal J. Morrissey, Chicago, Ill., assignor to General Binding Corporation, Northbrook, Ill.
Original application July 30, 1965, Ser. No. 476,097. Divided and this application Aug. 1, 1969, Ser. No. 861,531

Int. Cl. B29c 27/04

U.S. Cl. 156—273

10 Claims



A method for welding the plural fingers of a plastic binding element to the backbone of the binding element in a simple manner following the assembly of a multiplicity of sheets of paper or the like upon the binding element comprising providing a backing element for the backbone and inserting a probe generally transversely past the fingers to hold the overlying end of the finger against the backbone and then applying energy to the area of lapping comprising either ultrasonic vibrations or radio frequency energy to weld the ends of the finger to the backbone.

3,576,691 METHOD OF BONDING EMPLOYING HIGH-TEMPERATURE POLYMALEIMIDE ADHESIVES

Robert A. Meyers, Encino, Calif., assignor to TRW Inc., Redondo Beach, Calif.
No Drawing. Continuation-in-part of application Ser. No. 693,748, Dec. 27, 1967. This application Apr. 18, 1968, Ser. No. 722,141

Int. Cl. C09j 7/00

U.S. Cl. 156—309

12 Claims

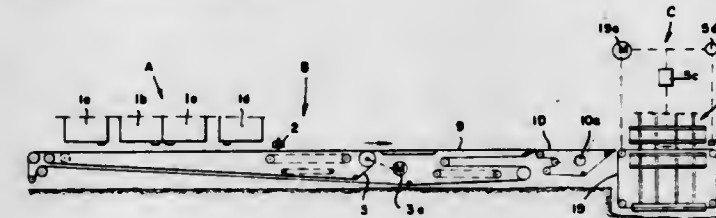
This invention relates to high-temperature adhesive compositions and to a method of preparing same which comprises low molecular weight polyimide prepolymers obtained by coreacting a polyfunctional amine, e.g. a diamine, a polyanhydride, e.g. a dianhydride and maleic anhydride, as the end-capping or terminal group. These adhesive-forming prepolymers are useful for bonding various materials together by applying, for example, a film of the prepolymer onto the surfaces of said materials and bonding them together by applying pressures ranging from atmospheric to about 1,000 p.s.i.g. at temperatures ranging from about 175° C. to 300° C.

3,576,692 PLANT FOR THE PRODUCTION OF INTEGRATED LAMINATES

Gerhard Hutz, Suchteln, Germany, assignor to G. Siempelkamp & Co., Krefeld, Germany
Filed June 17, 1968, Ser. No. 737,465
Claims priority, application Germany, Dec. 30, 1967, S 113,586, S 113,587, S 113,588
Int. Cl. B29j 5/00, 5/08

U.S. Cl. 156—369

6 Claims



A loosely coherent fiber mat is stacked with a plurality of laminae and subsequently pressed in a heated press. This press is only heated during the pressing operation and is cooled beforehand and afterwards.

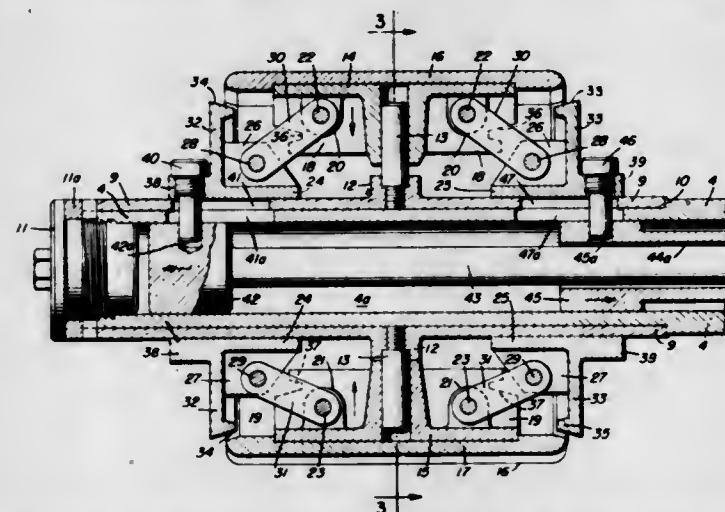
3,576,693 TIRE BUILDING DRUM ASSEMBLY

Antonio Paciarini, Milan, and Renato Caretta, Gallarate, Italy, assignors to Pirelli S.p.A., Milan, Italy
Filed Dec. 15, 1967, Ser. No. 691,060
Claims priority, application Italy, Dec. 22, 1966, 31,404/66

Int. Cl. B29h 17/16

U.S. Cl. 156—417

11 Claims



A rigid collapsible drum assembly including a plurality of arcuate sectors disposed about a rotatable shaft and means to displace said sectors radially with respect to said shaft, the amount of displacement and the arcuate length of the sectors being such that a continuous outer surface is formed by the sectors in their outermost radial position and in their innermost radial position.

3,576,694 METHOD OF, AND APPARATUS FOR FORMING A LINEAR SEAL BETWEEN TWO LAYERS OF A THERMOPLASTIC MATERIAL

Samuel Greisman, London, England, assignor to Contex Limited, London, England
Filed Oct. 23, 1967, Ser. No. 677,273
Claims priority, application Great Britain, Oct. 25, 1966, 47,913, 47,914

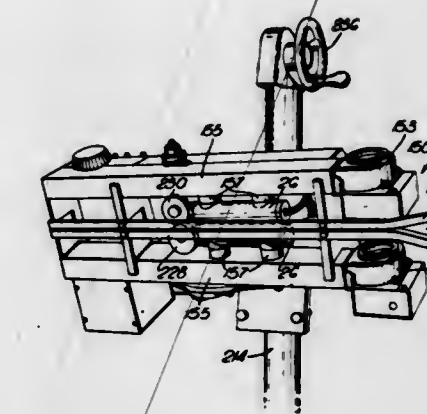
Int. Cl. B32b 31/00

U.S. Cl. 156—498

7 Claims

A method of forming a linear seal between two layers of a thermoplastic or thermoplastic-coated material, com-

prises gripping the layers in juxtaposed condition and progressing same in such condition with the grip extending linearly as progress is effected to provide a gripped



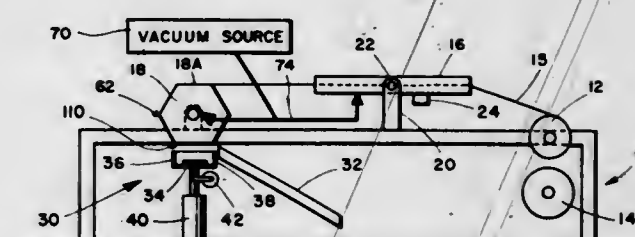
section and intercepting the path of progress successively by directing a plurality of jets of hot air from both sides of the juxtaposed layers.

3,576,695 TILE ADHESIVE APPLYING MACHINE

Walter E. Stine, Stow, Ohio, assignor to Morgan Adhesives Company, Summit, Ohio
Filed Aug. 11, 1969, Ser. No. 849,086
Int. Cl. B32b 31/20; B65c 9/10

U.S. Cl. 156—517

3 Claims



A machine for applying double faced pressure sensitive adhesive to cover the entire bottom surface of vinyl or asbestos tiles. A double face pressure sensitive web is applied to a multisided head that rotates in precise angular intervals by a Geneva type drive. The web is held to the head by a vacuum and tiles are then pressed into place against each face of the head with the web being cut to the proper length so as to properly cover each face of the head and insure exact registration of the cut portion of the web to the particular tile. The application of the tile to the adhesive sections on the head are achieved by appropriate cam control. The machine can adapt to tiles of various size and shape.

3,576,696 APPARATUS FOR PRODUCING LAMINATED PRODUCT

John Reginald Normanton, Altrincham, Hale, England, assignor to The Duplan Corporation, Winston-Salem, N.C.
Continuation-in-part of application Ser. No. 700,147, Jan. 24, 1968. This application July 11, 1969, Ser. No. 841,065

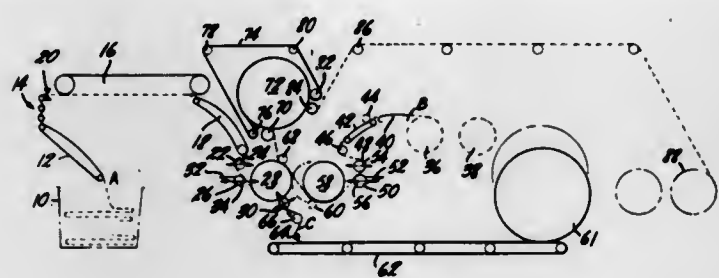
Claims priority, application Great Britain, July 11, 1968, 33,208/68, 33,209/68
Int. Cl. B32b 31/04

U.S. Cl. 156—547

12 Claims

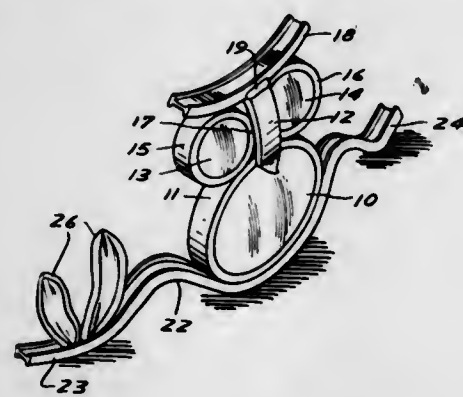
An apparatus for producing a laminated product of either two or three webs in which means is provided for imparting a predetermined uniform longitudinal tension

in said web and for feeding the tensioned web to an adhesive applying means by a tenter conveyor capable of



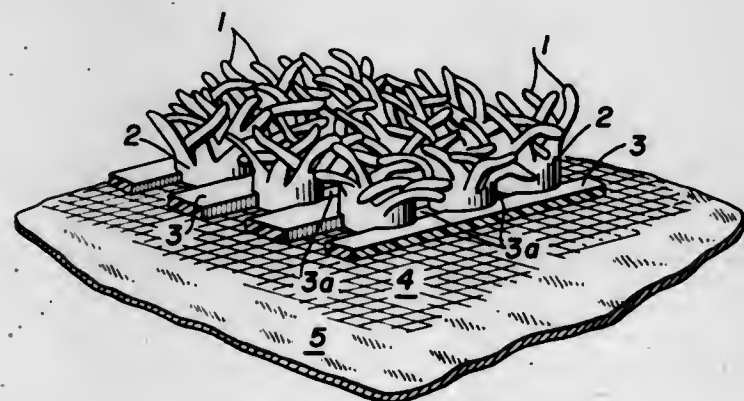
transversely aligning the web and by a conveyor having a high friction surface for maintaining the web in tensioned transversely aligned condition.

3,576,697
BUILDING BLOCK FOR DECORATIVE ARTS
Marie E. Lorch, 419 W. Wentworth,
West St. Paul, Minn. 55118
Filed Nov. 15, 1967, Ser. No. 683,181
Int. Cl. B44f 7/00; B23k 1/00
U.S. Cl. 161-19 8 Claims



Decorative objects are taught comprising preformed shapes of solid inorganic material having smooth perimeter edges, flexible strips of grooved lead material circumscribing the same, and solder joints. In the method of making the objects, soldering is accomplished at a low temperature without melting or distortion of the flexible lead.

3,576,698
MOLDED SYNTHETIC GRASS PRODUCTS HAVING A METALLIC BACKING
Ronald W. Chidgey, Pensacola, and Jack Doleman, Gulf Breeze, Fla., assignors to Monsanto Chemical Company, St. Louis, Mo.
Filed Sept. 16, 1968, Ser. No. 760,084
Int. Cl. A41g 1/00; D04h 11/00
U.S. Cl. 161-21 9 Claims



Molded, thermoplastic, three-dimensional synthetic sod is provided which comprises a matrix having openings,

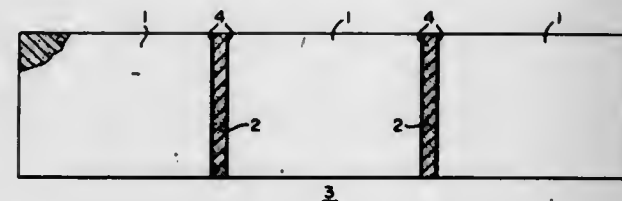
projections extending from the matrix to simulate blades of grass and an open mesh, metallic screen bonded to the under side of the matrix. The backing serves to provide dimensional stability to the sod against temperature changes. Additionally, the under side of the matrix may have a porous, fibrous, synthetic fabric bonded thereto through the openings in the metallic screen. The fabric serves to prevent weed growth and erosion.

3,576,699
PLASTIC BOUQUET HOLDER
Gene R. Meyer, % Lomey Manufacturing Corp.,
P.O. Box 7, Deer Park, N.Y. 11729
Filed July 14, 1969, Ser. No. 841,233
Int. Cl. A47g 7/00
U.S. Cl. 161-27 4 Claims



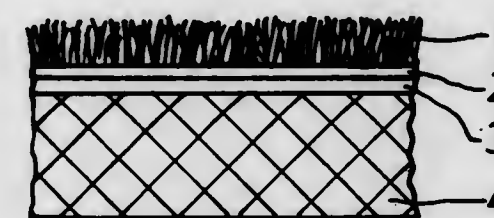
A plastic bouquet holder formed of a funnel shaped plastic at the outer periphery of which is stitched a lace serving to support the blossom heads while the flower stems are extended downwardly through the funnel and the spout thereof formed of a series of runners or fingers adapted to be entwined with the flower stems so as to provide a better grip of the stems when wound with the holding wire. The outer flange is formed of a series of triangular shaped portions allowing the lace to droop between the portions and thereby cover the flowers spaced peripherally about the holder. The flanges also serve as bumpers to protect the flowers.

3,576,700
HIGH STRENGTH JOINED POROUS BLOCK STRUCTURES AND METHOD OF MAKING SAME
Manuel Benjamin Dell, Pittsburgh, Pa., assignor to Aluminum Company of America, Pittsburgh, Pa.
Filed Nov. 3, 1969, Ser. No. 873,243
Int. Cl. B32f 3/14
U.S. Cl. 161-38 9 Claims



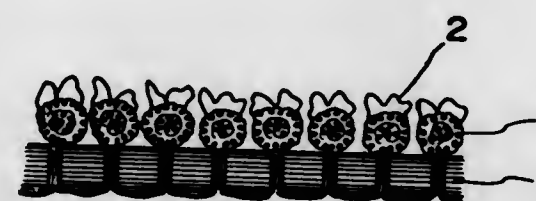
A high strength structure suitable for use as an electrode is made from a plurality of porous blocks joined together by a seam mixture which includes a carbonizable binder material. Before the blocks are joined together, surfaces of the blocks are coated with a mastic comprising a mixture of a carbonizable binder and finely divided heat resistant particles, the particles forming 30 to 75 percent by weight of the mastic. The assembly, i.e., the coated blocks and seam mixture is then baked for a length of time and at a temperature sufficient to carbonize the binders.

3,576,701
TEXTILE FLOOR COVERING HAVING A VELOURISED KNITTED FABRIC OUTER SURFACE
Manfred Salamon and Martin Wandel, Dormagen, Heinz Sievert, Leverkusen-Alkenrath, and Hans Steinbliss, Trier, Germany, assignors to Farbenfabriken Bayer Aktiengesellschaft, Leverkusen, and Deutsche Bobinet-Industrie, Gesellschaft mit beschränkter Haftung, Trier, Germany
Filed Feb. 5, 1969, Ser. No. 796,800
Claims priority, application Germany, Feb. 24, 1968, F 33,809
Int. Cl. D03d 27/06; B32b 7/08
U.S. Cl. 161-50 3 Claims



The multilayer textile floor covering consists of (a) a velourised knitted fabric from polyamide yarns, (b) an intermediate layer of a vinyl or polyurethane polymer and (c) a stitched fiber fleece having a supporting fabric stitched to its surface. The stitched fiber fleece has a layer thickness of between 3 to 7 mm. The multilayer textile floor covering has a high sound insulating capacity, a requisite resilience and a high level of recovery.

3,576,702
TUFTED CARPET AND A METHOD FOR PRODUCING SAID CARPET
Masao Matsui, Takatsuki, and Keizo Ueda, Nishinomiya, Japan, assignors to Kanegafuchi Boseki Kabushiki Kaisha, Tokyo, Japan, and SNIA Viscosa Società Nazionale Industria Applicazioni Viscosa S.p.A., Milan, Italy
Filed Mar. 28, 1967, Ser. No. 626,613
Claims priority, application Japan, Jan. 5, 1967, 42/1,305
Int. Cl. D04h 11/00; D05c 17/02; D06c 7/00
U.S. Cl. 161-65 19 Claims



A tufted carpet having a double surfaced structure and a unique appearance, the pile of which is composed of multifilament consisting of a composite filament composed of two thermoplastic synthetic linear polymers and having a latent crimpability and one-component filament composed of a thermoplastic synthetic linear polymer, said composite filament being adhered tightly and distributed uniformly on the surface of a base cloth for the carpet in crimped state and said one-component filament forming loop on the surface of the pile. The method for producing said tufted carpet comprising tufting substantially not crimped multifilament consisting of the composite filament and the one-component filament on the base cloth for the carpet to form carpet pile and then subjecting the resulting carpet to a heat or swelling treatment to develop fully crimps of the composite filament, said

composite filament being produced by melting two thermoplastic synthetic linear polymers having different shrinkabilities separately and extruding said melted polymers through a common orifice to form unitary filament, in which said two polymers are bonded eccentrically in side-by-side or sheath and core relation along the total length of said unitary filament and taking up on a bobbin into a bundle.

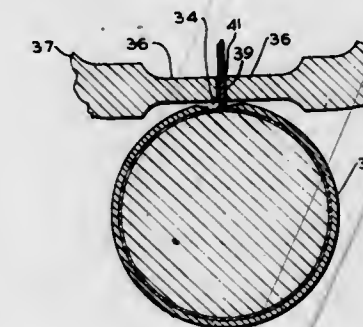
3,576,703
STRETCHABLE FABRIC-PLASTIC FILM LAMINATES
Melvin C. Baker and Boni Philip Martinez, Wilmington, Del., assignors to E. I. du Pont de Nemours and Company, Wilmington, Del.
No Drawing. Filed Apr. 22, 1968, Ser. No. 723,281
Int. Cl. B32b 5/04; 27/12
U.S. Cl. 161-77 11 Claims
Laminates, suitable for use in vacuum forming applications, comprising a stretchable thermoplastic fabric, e.g., nylon or polyester knit fabrics, and a plastic film, e.g., polyvinyl chloride, are disclosed. The laminates are prepared using vinyl acetate/ethylene copolymer adhesive compositions which are ordinarily applied to the plastic film in emulsion form.

3,576,704
PLEAT STUFFED UPHOLSTERY FABRIC
Homer W. Groce, Lyman, S.C., Arthur R. Teague, Charlotte, N.C., and William A. Warnock, Lyman, S.C., assignors to Burlington Industries, Inc., Greensboro, N.C.
Filed July 3, 1968, Ser. No. 742,460
Int. Cl. A47c 7/02; B32b 3/00; B65b 43/00
U.S. Cl. 161-120 1 Claim



A stuffed pleated upholstery fabric including an upper fabric and an interwoven lower fabric forming pleats filled with elastomeric material having a protective layer on each side thereof. At least one of the fabrics may include heat shrinkable thermoplastic yarns therein for shaping purposes.

3,576,705
UNCURED RESIN COATED FILAMENT REINFORCED PRODUCT
William B. Goldsworthy, 2504 Novato Place, Palos Verdes Estates, Calif. 90274
Filed Oct. 12, 1967, Ser. No. 674,820
Int. Cl. B32b 5/08
U.S. Cl. 161-143 7 Claims



Fiberglass filament unwound from a series of spools is impregnated with a resin matrix and passed through a pair of rollers or sizing bushing for removing the excess resin and air therefrom. The resin impregnated fiber glass is then enveloped within a sheet of unidirectionally oriented plastic film, the latter being sealed along its upper longitudinal margin by means of an ultrasonic weld

or heat weld. The film enclosed composite may then be heated to shrink the film. The temperature should be sufficiently low to have no curing effect on the resin leaving it in the uncured or so-called "A-stage." For some systems it is desirable to advance the resin to a semi-cured or so-called "B-stage." The film enclosed composite may then be wound upon suitable reels and stored for further use.

3,576,706

CARPET UNDERLAY

Gert F. Baumann, Bridgeville, and John F. Szabat, Pittsburgh, Pa., assignors to Mobay Chemical Company, Pittsburgh, Pa.
No Drawing. Filed July 25, 1968, Ser. No. 747,487
Int. Cl. B32b 5/18

U.S. Cl. 161—160 8 Claims
Carpet underlay wherein a self-sustaining facing layer and a polyurethane foam layer are adhesively bound together. The polyurethane foam has certain critical properties including:

- a density of about 3 to about 8 pounds per cubic foot, an indentation load deflection of at least about 50 pounds at 25% deflection per 50 square inch area for at least an 0.5 inch thickness,
- a compression set below about 10% after 22 hours at 90% compression,
- a tensile strength of at least about 10 pounds per square inch,
- an elongation of at least about 50%, and
- a foam softening by linear shear of less than 50%.

3,576,707

MULTILAYERED IRIDESCENT PLASTIC ARTICLES

Walter J. Schrenk, Bay City, and Douglas S. Chisholm, Kenneth J. Cleereman, and Turner Alfrey, Jr., Midland, Mich., assignors to The Dow Chemical Company, Midland, Mich.
Continuation of abandoned application Ser. No. 445,851, Mar. 29, 1965, which is a continuation-in-part of application Ser. No. 431,336, Feb. 9, 1965. This application June 6, 1969, Ser. No. 863,729
Int. Cl. B32b 7/02, 27/08

U.S. Cl. 161—164 14 Claims
Multiple layer films are made by arranging a minimum of two streams into one stream having a plurality of generally parallel layers. By mechanically manipulating the layered stream an increased number of layers are obtained and the manipulating stream is shaped into a desired configuration having a plurality of layers generally adjacent to a major surface thereof. Under certain conditions, iridescent products are obtained without the use of pigment.

3,576,708

ASBESTOS MATERIALS OF HIGH DIELECTRIC STRENGTH AND METHOD OF MAKING SAME

Richard C. Breiner, Florham Park, N.J., assignor to Nicolet Industries, Inc., Florham Park, N.J.
No Drawing. Filed Feb. 21, 1968, Ser. No. 707,308
Int. Cl. D21h 5/18

U.S. Cl. 162—138 4 Claims
(1) Asbestos articles of improved dielectric strength are made by distributing pulverulent exfoliated vermiculite throughout an asbestos fiber-binder composition; approximately 1 part of vermiculite is present per 1-5 parts of asbestos.
(2) A material of great dielectric strength is made by wetting the ordinary sheet of the above composition with water solutions of aluminum phosphate or certain silico fluorides, pressing the wet sheet at elevated pressure for a time to increase the density thereof and, then drying the wet, pressed article.

3,576,709

PROCESS FOR MAKING PULP UTILIZING A MIXTURE OF PHOSPHORIC AND NITRIC ACIDS

John W. Menzies, Laguna Hills, Calif., assignor to University Development Foundation
No Drawing. Continuation-in-part of application Ser. No. 696,501, Jan. 9, 1968. This application Nov. 25, 1968, Ser. No. 778,847
Int. Cl. D21c 11/00; C05f 11/00

U.S. Cl. 162—16 16 Claims
A process for pulping lignified plant materials to high or low grade pulps. The process employs an acid immersion step in a mixture of phosphoric and nitric acids. All or any lesser amount of the acid-lignin reaction products may be removed by immersion in an alkaline solution of a soluble potassium compound and ammonium hydroxide. Substantially all of the reactants are utilized to produce pulp or recoverable by-products so that air and ground water contamination are avoided.

3,576,710

BRIGHTENING OF WHITE WATER SLUDGE

Robert J. Mader, Wisconsin Rapids, and Douglas E. Moldenhauer, Plover, Wis., assignors to Consolidated Paper, Inc., Wisconsin Rapids, Wis.
No Drawing. Filed July 28, 1969, Ser. No. 845,483
Int. Cl. D21c 9/10; D21f 1/66

U.S. Cl. 162—79 6 Claims
Brightening a save-all sludge recovered from the white-water of a paper making process which comprises treating it with zinc hydrosulfite prior to introducing it to an aqueous paper furnish, and the production of paper therefrom of improved brightness as compared to the employment of sludge which has not been so pretreated.

3,576,711

FIBREBOARD INCLUDING PAPER SHEET WITH WOODGRAIN LINE PATTERN AND COMPLEMENTARY, BUT NON-REGISTERING EMBOSSED PATTERN

Stanley H. Baldwin, Oakville, Ontario, Canada, assignor to Abitibi Paper Company, Ltd., Sturgeon Falls, Ontario, Canada
No Drawing. Filed Nov. 17, 1967, Ser. No. 683,825
Claims priority, application Canada, Feb. 2, 1967, 981,852
Int. Cl. D21h 5/02

U.S. Cl. 162—117 11 Claims
A pressed fibreboard having an improved surface appearance is disclosed. It is made by preparing a partially dewatered wet lap having a solids content of about 25 to 40% by weight of defibrated and refined wood chips, applying paper printed with a line pattern to the partially dewatered wet lap with the printed pattern facing outwardly, and then simultaneously embossing a nonregistering pattern which is complementary in that it has very approximately the same line spacing and configuration as the printed line pattern on the surface of the wet lap to which the printed paper has been applied and consolidating the printed paper and wet lap under heat and pressure in a press to provide a pressed fibreboard.

3,576,712

SIZING PAPER WITH EITHER SULFONE, SULFOXIDE OR SULFIDE AND A POLYALKYLENE-IMINE

William Robert Hine, Jr., Kirkwood, and Myron J. Holm, St. Louis, Mo., assignors to Monsanto Company, St. Louis, Mo.
No Drawing. Continuation-in-part of abandoned application Ser. No. 520,639, Jan. 14, 1966. This application Apr. 16, 1969, Ser. No. 816,772
Int. Cl. D21h 3/40; D21d 3/00

U.S. Cl. 162—168 8 Claims
A combination of a 2-chloroalkyl sulfone, a 2-chloroalkyl sulfoxide or a 2-chloroalkylsulfide, and a polyalkyl-

eneimine which is useful as a sizing agent in the preparation of sized cellulosic paper substrates.

3,576,713

PROCESS FOR DETERMINING IONIC CHARACTER OF A PAPER MASS IN A PAPERMAKING PROCESS

Ewald Fricke, Unterhaching, Germany, assignor to CPC International, Inc.
No Drawing. Continuation-in-part of application Ser. No. 528,825, Feb. 21, 1966. This application July 10, 1969, Ser. No. 840,850
Int. Cl. D21f 11/00, 13/00; D21h 3/80

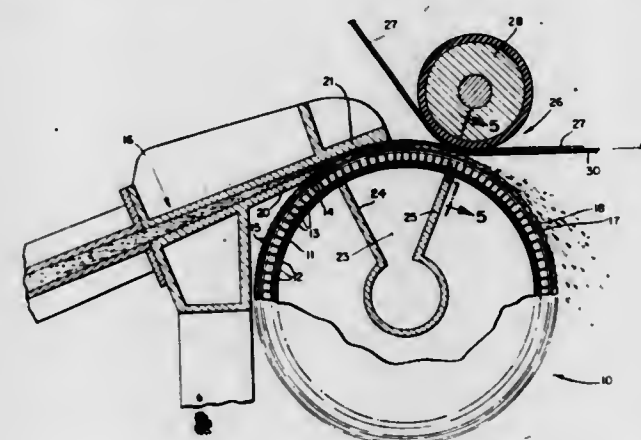
U.S. Cl. 162—198 10 Claims
The present invention covers a relatively simple method of determining the ionic character of starches, wood pulps, paper masses, and paper surfaces. Particularly, it has been found that the ionic character of these materials can be established by mixing them with solutions of suitable organic coloring materials which thereby show changes in the range of visible light in accordance with the ionic character of the materials.

3,576,714

APPARATUS FOR HIGH SPEED WEB PICKUP

George P. Thom, Spanish Fort, and William W. Wadsworth, Mobile, Ala., assignors to Scott Paper Company, Delaware County, Pa.
Filed July 12, 1968, Ser. No. 744,492
Int. Cl. D21f 2/00

U.S. Cl. 162—306 11 Claims



An apparatus is disclosed for accomplishing high speed pickup and transfer of a wet paper web from a web-forming surface to a pickup felt while reducing or eliminating hydraulic forces acting on the web, which, for pressing the pickup felt into engagement with the web, utilize a pickup roll having an outer cylindrical surface containing a plurality of fine recesses between land areas that support the felt. The apparatus disclosed reduces or eliminates drop-off problems experienced at higher operating speeds of papermaking machines, and are a particular benefit in the higher speed operation of certain cylindrical-former type papermaking machines.

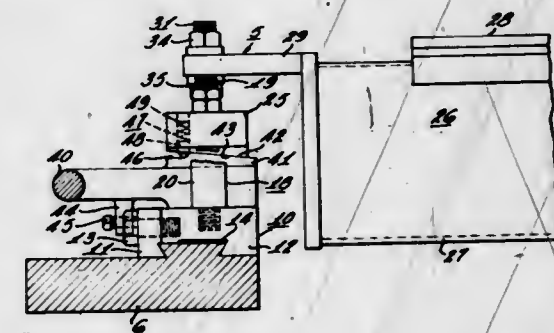
3,576,715

QUICK LOWERING MECHANISM FOR FOURDRINIER DRAINAGE FOIL

Fred J. Gedemer and Lee R. Loughran, Appleton, Wis., assignors to Allis-Chalmers Manufacturing Company, Milwaukee, Wis.
Filed Oct. 2, 1967, Ser. No. 672,116
Int. Cl. D21g 9/00

U.S. Cl. 162—352 6 Claims
A portion of a paper making machine is disclosed where paper stock discharged from a headbox is deposited upon a Fourdrinier type web forming wire provided with drainage foils beneath the wire (substituted for table

rolls), and a foil is supported beneath the wire by a support mechanism including a wedge type cam which when withdrawn from a support engaging position quickly lowers the foil to an inoperative position and when



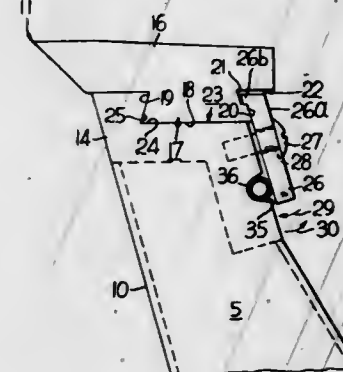
reinserted in a support engaging position quickly raises the foil to an operative position, without upsetting the angular and spacing adjustment of the foil relative to the wire when the foil is in its operating position.

3,576,716

FOURDRINIER DRAINAGE FOIL ASSEMBLY

George E. Reynolds, Fred J. Gedemer, and Lee R. Loughran, Appleton, Wis., assignors to Allis-Chalmers Manufacturing Company, Milwaukee, Wis.
Filed June 12, 1969, Ser. No. 832,703
Int. Cl. D21f 1/26

U.S. Cl. 162—352 6 Claims



A portion of a papermaking machine is disclosed where paper stock discharged from a headbox is deposited upon a Fourdrinier type web forming wire provided with drainage foil assemblies beneath the wire (substituted for table rolls), and a foil assembly is supported beneath the wire by a support mechanism carried on rails beneath and parallel to the edges of the wire. The assembly includes a body which is connected to the support mechanism and a foil cap mounted on top of the foil body. The foil body and foil cap are provided with a dovetail connection therebetween, a clamp bar overlapping both the body and cap and pivotally connected to the body, and a fluid pressure inflatable tube between the bar and body on a side of the pivotal connection opposite the cap, for securely clamping the cap to the body upon inflating the tube.

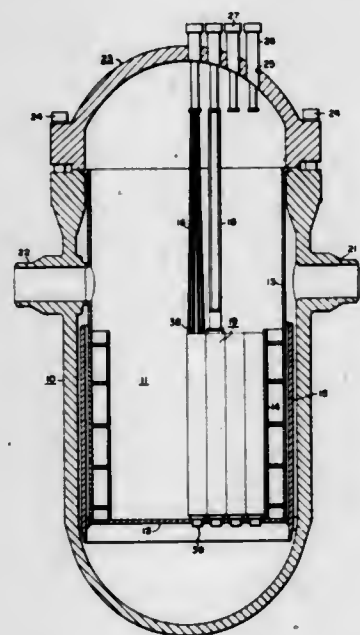
3,576,717

NUCLEAR REACTOR STRUCTURE

Arthur G. Thorp II, deceased, late of Churchill Borough, Pa., by Ruth S. Thorp, administratrix, Churchill Borough, Pa., assignor to Westinghouse Electric Corporation, Pittsburgh, Pa.
Filed Jan. 24, 1968, Ser. No. 702,500
Int. Cl. G21c 7/08

U.S. Cl. 176—35 12 Claims
The fuel assemblies in a reactor are fixed arrays of fuel rods without the usual omissions for control rod slots. Instead, a number of fuel rods are omitted in the pattern

on a nearly uniform grid throughout the core to provide spaces for pressure thimbles to house control elements of neutron absorbing material, such as a chain or bead type. The control elements are driven in or out of the core by such means as wire rope cables which are grouped



to be driven by one mechanism per assembly. The thimbles are sealed at their lower ends and the interior thereof is isolated from the internal pressure of the reactor vessel so that the control elements operate in air or other gas, for example helium.

3,576,718

PROCESS OF PRODUCING GLUCONIC ACID AND GLUCONATES

Jack Ziffer, Milwaukee, Arthur S. Gaffney, Waukesha, Simon Rothenberg, Shorewood, and Thomas J. Cairney, Milwaukee, Wis., assignors to Pabst Brewing Company, Milwaukee, Wis.

No Drawing. Original application Feb. 12, 1965, Ser. No. 432,378, now Patent No. 3,454,501, dated July 8, 1969. Divided and this application Aug. 15, 1968, Ser. No. 821,516

Int. Cl. C12d 1/06

U.S. Cl. 195—36

13 Claims

Aldonic acids and aldones, more particularly, gluconic acid and gluconates, are prepared by a fermentation process in which a portion of the aldose is fermented. Thereafter more aldose is added and fermented until the fermentation medium contains a high concentration of aldonic acid and/or aldones.

3,576,719

ALKALINE PROTEINASE

Sawao Murao, Osaka, Japan, assignor to E. R. Squibb & Sons, Inc., New York, N.Y.

No Drawing. Filed Apr. 23, 1968, Ser. No. 723,609

Int. Cl. C12d 13/10

U.S. Cl. 195—62

2 Claims

This invention relates to a new alkaline proteinase produced by a strain of *Bacillus subtilis*. The new proteinase has a high activity optimum (pH 11.0) and also a high temperature tolerance. This material is obtained in solution in the extracellular fluid of a broth culture of the microorganism and may be isolated in crystalline form by relatively simple crystallization procedures. It is useful, for example, for disrupting protein bonds under a variety of conditions.

3,576,720

PROCESS FOR THE CONTINUOUS PRODUCTION OF TORULA YEAST FROM COFFEE BERRY WASTE

Karl Wilhelm Emil Fries, San Rafael de Escazu, San Jose, Costa Rica, Central America, assignor to St. Regis Paper Company, New York, N.Y.

No Drawing. Filed Apr. 25, 1969, Ser. No. 819,408

Int. Cl. C12c 11/00

U.S. Cl. 195—82

4 Claims

The waste hulls or pulp remaining after the recovery of coffee beans from coffee berries is extracted with water, the extract is then pasteurized by heating and cooled and diluted to produce an extract containing between 1 and 4% sugars, from which the pectin and other colloidal substances are then separated; this extract is then adjusted to a pH between 4.5 and 5.0 by the addition of ammonia to produce a nutrient broth suitable for the growth of torula yeast, which broth is continuously supplied to a fermentation tank in which torula yeast is already growing while portions of the torula yeast that were grown therein together with accompanying spent broth are continuously withdrawn from the fermentation tank. The torula yeast grown on the broth produced from coffee berry waste has a much lighter color than that produced from spent sulfite liquor.

3,576,721

SAMPLER AND INCUBATOR FOR VIABLE AND NONVIABLE AIRBORNE PARTICLES

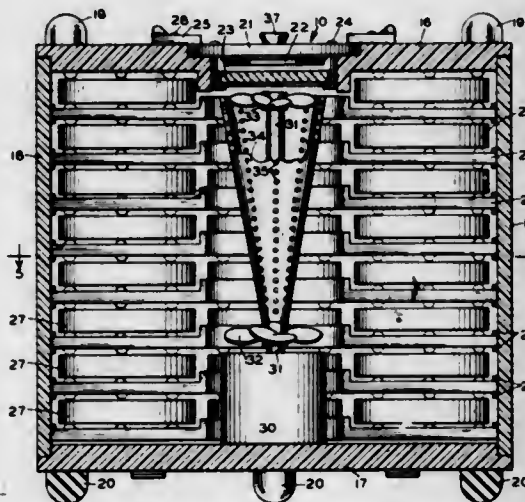
Herman C. Mason, 1909 Schiller St., Little Rock, Ark. 72202

Filed Aug. 26, 1968, Ser. No. 756,736

Int. Cl. C12k 1/04; C12b 1/04

U.S. Cl. 195—139

11 Claims



A sampler and incubator for determining the concentration and character of both viable and nonviable particulates functions (1) in an upright standing position as a sampler when a conical centrifugal distributor with its associated fan is rotated for selectively depositing airborne particulates from environmental air on a group of sampling plates spaced around the distributor at least some of which have a nutrient coating and (2) in an inverted standing position as an incubator for effecting the in situ incubation of the inoculated nutrient media which may be produced by the deposition of viable particulates during the sampling procedure.

3,576,722

METHOD FOR METALIZING CERAMICS

Ellsworth M. Fennimore, Bloomfield, and Gerardo A. Ritacco, Belleville, N.J., assignors to The Bendix Corporation

Filed Mar. 26, 1969, Ser. No. 810,764

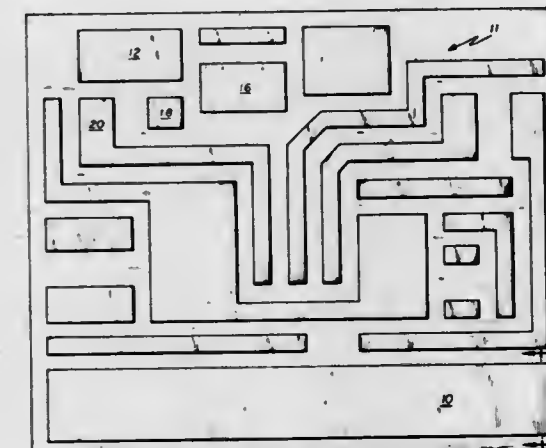
Int. Cl. B44d 1/18; C23b 5/48; B29c 17/08

U.S. Cl. 204—15

15 Claims

A method for applying intricate electroconductive metallic patterns to a ceramic substrate. A refractory metal

is applied to the substrate, and over which refractory metal are applied successive layers of a primary electroconductive metal. A pattern is applied to the primary metal



and a final electroconductive metal is applied over the pattern. By using selective etchants all metals outside of the pattern are removed to expose the substrate.

3,576,723

METHOD OF MAKING SHIELDED FLAT CABLE

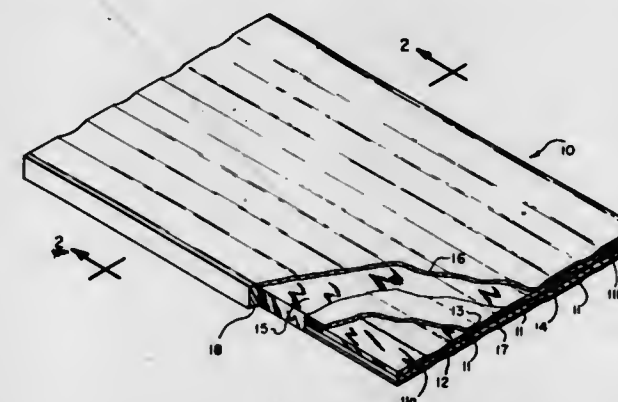
Wilhelm Angele, Huntsville, and Bobby W. Kennedy, Arab, Ala., assignors to the United States of America as represented by the Administrator of the National Aeronautics and Space Administration

Filed Apr. 23, 1968, Ser. No. 723,488

Int. Cl. C23b 5/64

U.S. Cl. 204—30

7 Claims



A flat conductor cable having multiple ribbon-like conductors in spaced, parallel arrangement in a flat strip of insulating material is coated with a layer of shielding metal such as copper by roughening the surface of the insulating strip, contacting the strip with an electrolyless plating bath and then with an electrolytic plating bath. Contact of the metal shield with a ground conductor is obtained by exposing a portion of one or more conductors along the length of the cable prior to plating. An outer layer of insulating material is applied over the shielding layer.

3,576,724

ELECTRODEPOSITION OF RUTHENIUM

Gadhireddy Satyanarayan Reddy, London, and Pam Taimsalu, Greenford, England, assignors to The International Nickel Company, Inc., New York, N.Y.

No Drawing. Filed Sept. 5, 1968, Ser. No. 757,762

Claims priority, application Great Britain, Oct. 18, 1967, 47,477/67; Dec. 12, 1967, 56,428/67; May 2, 1968, 20,908/68

Int. Cl. C23b 5/24

U.S. Cl. 204—47

7 Claims

Ruthenium complex compounds are produced in which the anion has the general formula $[Ru_2N(H_2O)_xY_z]^{2-}$ wherein Y is a chloro or bromo group, x equals 2, 3 or

4, x+y equals 10 and z equals 5-x, and the cation is most advantageously monovalent, for example, ammonium, lithium, sodium or potassium. A plating bath is prepared using the ruthenium complex compounds in aqueous acidic solution and the plating bath is employed in the electrodeposition of ruthenium.

3,576,725

HIGH SPEED BRIGHT NICKEL PLATING AND ELECTROLYTE THEREFOR

Frank Passal, Detroit, Mich., assignor to M & T Chemicals Inc., New York, N.Y.

No Drawing. Filed June 7, 1963, Ser. No. 286,170

Int. Cl. C23b 5/08, 5/46

U.S. Cl. 204—49

4 Claims

A method of high speed electroplating bright nickel deposits. The bath comprises phenylpropionamide as brightener and leveler and may additionally contain sulfo-oxygen compounds such as saccharin. High current densities and high electrolyte flow rates are used simultaneously to achieve a high rate of nickel deposition.

3,576,726

CORROSION RESISTANT COATINGS FOR CHLORINE PRODUCING ELECTROLYTIC CELLS

Roy M. Cooper, Groton, Conn., assignor to Olin Corporation, New Haven, Conn.

No Drawing. Filed Apr. 11, 1969, Ser. No. 815,490

Int. Cl. B01k 1/00; C08f 35/02

U.S. Cl. 204—128

7 Claims

Coating compositions are prepared using unsaturated polyesters, vinylaromatics and uncured Dexsil (siloxycarbonyl) polymers and copolymers. The catalyzed coating compositions are cured on any of various substrates, particularly the ferrous surfaces of parts of electrolytic cells. The cured coatings resist the wet chlorine gas and chlorine-containing aqueous alkali metal brines in such cells.

3,576,727

GEL ELECTROPHORESIS PROCESS

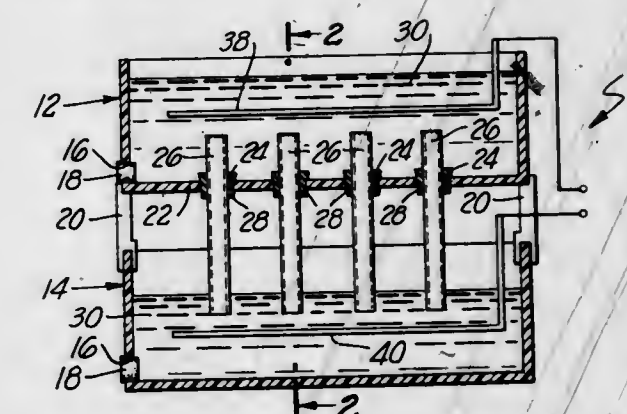
Bruce Lee Evatt, Graybill Farm, Timbergrove Road, Owings Mills, Md. 21117

Filed May 23, 1968, Ser. No. 731,552

Int. Cl. B01k 5/00

U.S. Cl. 204—180

5 Claims



A gel electrophoresis apparatus and process are disclosed which are primarily intended to be used in separating blood into its components. The apparatus contains upper and lower electrolyte containers connected by at least one vertically extending tube containing a gel. Electrodes are located in the container and the containers are filled with an electrolyte connected through the tube. In the preferred manner of use whole blood is located on a carrier member containing a hemolysis agent and the member is located on the top of the gel within the tube; thereafter a potential is applied across the electrodes so as to cause migration of compounds within the blood within the gel structure in the tube.

3,576,728

ELECTROPHORETIC COATING PROCESS

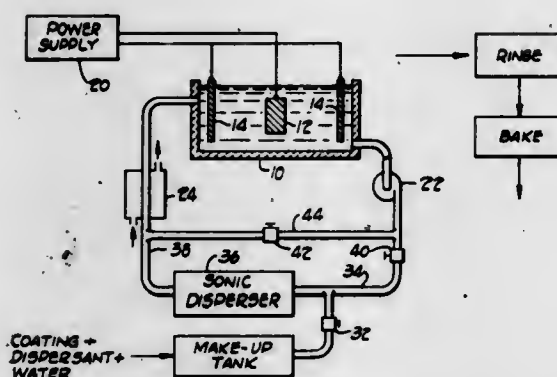
Noel A. Smith, Warren, and John L. Petty and Helen O. Slywinsky, Detroit, Mich., assignors to The Sherwin-Williams Company, Cleveland, Ohio

Filed Mar. 20, 1968, Ser. No. 716,281

Int. Cl. B01k 5/02; C23b 13/00

U.S. Cl. 204—181

24 Claims



An organic phase is dispersed in an alkaline aqueous phase by addition of polar dispersing agent miscible with organic phase. These emulsions are useful for coating self-terminating polymer films on conducting substrates by electrophoresis. The electrocoating process is useful for high speed continuous and semi-continuous operations. The electrocoating baths can be replenished from a concentrate material without disproportionate buildup of bath components. High electrical efficiency is realized in weight of film deposited per unit of current. Electrodeposited films provide excellent corrosion resistance to metal substrates with thin films of about 10 to 50 microns thickness.

3,576,729

Norman Lomas Sigournay, Cheltenham, and Hugh Norman Evans, Bristol, England, assignors to Smiths Industries Limited, London, England

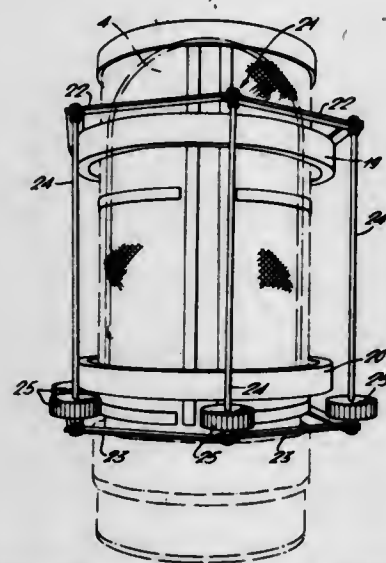
Filed May 31, 1968, Ser. No. 733,669

Claims priority, application Great Britain, June 5, 1967, 25,874/67

Int. Cl. C23c 15/00

U.S. Cl. 204—192

22 Claims



Sputter-deposition of superimposed metal films on ceramic substrates in batch-production of microcircuit devices is made by ionic bombardment of successive targets from a plasma created using an electron beam, the bombardment being accompanied by application of a transverse magnetic field rotating about the path of the beam. The substrates are carried between target-assemblies that

are rotatable to effect deposition from different targets successively, and the top and bottom films deposited are etched away to form respectively the circuit interconnections and resistive elements of the devices.

3,576,730

NICKEL/NICKEL OXIDE REFERENCE ELECTRODES FOR OXYGEN PARTIAL PRESSURE MEASUREMENTS

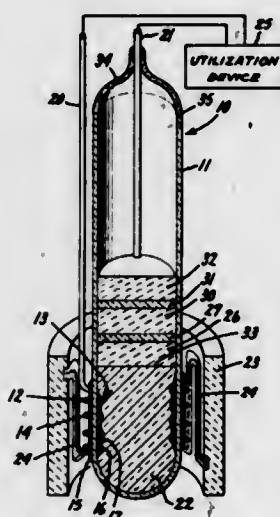
Henry S. Spacil, Schenectady, N.Y., assignor to General Electric Company

Filed Apr. 19, 1968, Ser. No. 722,769

Int. Cl. G01n 27/46

U.S. Cl. 204—195

4 Claims



A high temperature oxygen sensing cell with means for producing a partial pressure of oxygen as a reference. A mixture composed of nickel, nickel oxide and an antisealing material is compacted in a tube formed of a solid oxygen-ion electrolyte. When the resulting cell is sealed to prevent substantial quantities of environmental oxygen from reaching the mixture, a stable partial pressure of oxygen, dependent upon temperature, is produced within the tube.

3,576,731

RECTIFYING ELECTRODE FOR DIRECT CONNECTION TO A.C. SOURCE

Kenji Ueda, Nagasaki, Japan, assignor to Mitsubishi Jukogyo Kabushiki Kaisha, Tokyo, Japan

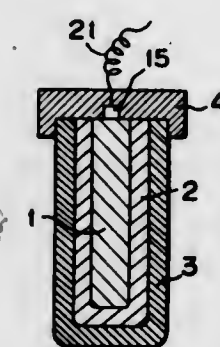
Continuation of application Ser. No. 661,108, Aug. 16, 1967. This application Apr. 27, 1970, Ser. No. 29,772

Claims priority, application Japan, Aug. 20, 1966, 41/54,668

Int. Cl. B01k 3/00

U.S. Cl. 204—228

5 Claims



A rectifying electrode, for direct connection to a source of A.C. potential while immersed in sea water or electrolyte, including a first layer of alkali-resistant electrically conductive metallic material, such as an alkali-proof metal, a second layer of electrically conductive metallic

material insoluble in sea water and electrolyte, such as insoluble metal, and a layer of semi-conductor material interposed between the first and second layers in electrically conductive relation therewith. The rectifying electrode may be used as an electrode of an electrolytic cell or may be used as an electrode for protecting a structure against electrolysis.

3,576,732

CAST ELECTRICAL BATTERIES AND PROCESS FOR THEIR PRODUCTION

Kurt Weidinger, Friedrichsdorf, and Adolf Kalberlah, Braunschweig, Germany, assignors to Varta Aktiengesellschaft, Frankfurt am Main, Germany

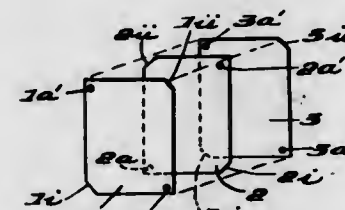
Filed Feb. 16, 1968, Ser. No. 706,102

Claims priority, application Germany, Feb. 18, 1967, V 33,005

Int. Cl. B01k 3/00; H01m 27/00

U.S. Cl. 204—258

16 Claims



An electrical device for the production or use of electrical energy which has a cast casing enclosing a plurality of positive and negative gas diffusion electrodes compactly arranged in an alternating sequence of polarity and in such a way that a portion of the surfaces of all of the electrodes of one, or of both, polarities project on at least one side of the arranged electrodes in a uniform manner beyond recessed surfaces of all of the electrodes of the opposite polarity. The casing is cast from synthetic resin and has continuous electrolyte supply canal means therein for supplying electrolyte to, and removing electrolyte from, the electrodes; the casing also has holes for supplying operating gas to and removing such gas from, the electrodes.

Process for fabricating the electrical device which includes compactly arranging the electrodes with removable spacing elements and cores therebetween, casting the resulting compact structure in a suitable casting resin, removing the spacing elements and cores to provide internal electrolyte chambers and conduits and then drilling holes through the casing and into the electrodes to provide gas inlet and exit openings for operating gases.

3,576,733

OZONIZERS

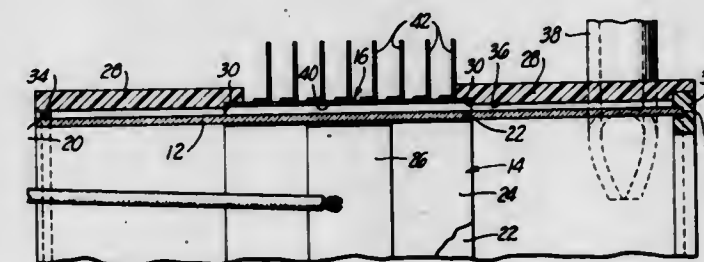
Stuart W. Beltzel, Santa Monica, Calif., assignor to Puromatic, Inc.

Filed Oct. 29, 1968, Ser. No. 771,456

Int. Cl. C01b 13/12

U.S. Cl. 204—320

5 Claims



A silent ozonizer is disclosed which includes a cylindrical dielectric tube carrying a first electrode on its interior between its ends. A housing means including a second

electrode is located around the dielectric tube so as to define a tubular channel extending between the two electrodes. Means are provided for introducing and removing the gas tangentially from the opposite ends of the channel. Preferably the dielectric tube is a transparent tube which is directly contacted by the first electrode and the second electrode is of a metal which acts as and/or which carries a catalyst for the production of ozone. Such a catalyst may be used in a differently constructed ozonizer; similarly such a transparent dielectric tube may be utilized between electrodes in other differently constructed silent ozonizers.

3,576,734

PROCESS FOR PRODUCTION OF SYNTHETIC CRUDE OIL FROM LOW TEMPERATURE COAL TARS

Harold L. Bennett, Indianapolis, Ind., assignor to Bennett Engineering Company, Rushville, Ind.

No Drawing. Filed Sept. 25, 1968, Ser. No. 762,611

Int. Cl. C10g 1/00

U.S. Cl. 208—8

5 Claims

A process for the production of synthetic crude oil from low temperature coal tars which have been obtained by careful temperature control during the carbonization of various coal materials, such as coal.

3,576,735

PARAFFINIC SLACK WAX AS A DEWAXING AID FOR LUBRICATING OILS

Harry C. Murphy, Jr., Apollo, and Harry C. Stauffer, Cheswick, Pa., assignors to Gulf Research & Development Company, Pittsburgh, Pa.

No Drawing. Continuation-in-part of abandoned application Ser. No. 553,727, May 31, 1966. This application Oct. 29, 1969, Ser. No. 872,403

Int. Cl. C10g 23/00, 43/08

U.S. Cl. 208—27

8 Claims

An improved process for the production of bright stock of improved pour point and hazing characteristics which process comprises blending a residual lubricating oil stock with slack wax and then subjecting the blend to solvent dewaxing.

3,576,736

HYDROCRACKING CATALYST COMPRISING A CRYSTALLINE ZEOLITIC MOLECULAR SIEVE COMPONENT, A GROUP VIII COMPONENT AND GOLD, AND PROCESS USING SAID CATALYST

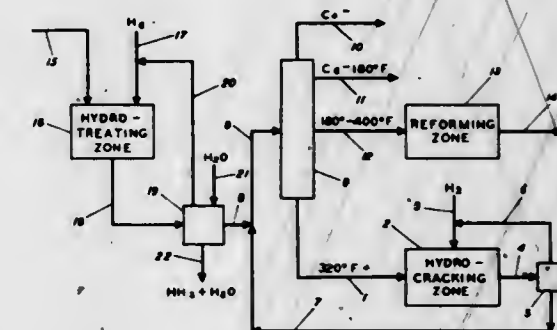
James R. Kittrell, El Cerrito, Calif., assignor to Chevron Research Company, San Francisco, Calif.

Filed June 17, 1969, Ser. No. 834,034

Int. Cl. C10g 13/02, 13/10

U.S. Cl. 208—60

15 Claims



A hydrocracking catalyst comprising a crystalline zeolitic molecular sieve cracking component, 0.01 to 2.0 weight percent, based on said cracking component and calculated as the metal, of a hydrogenating component selected from the metals platinum, palladium, rhodium, ruthenium, iridium, and compounds of said metals, and

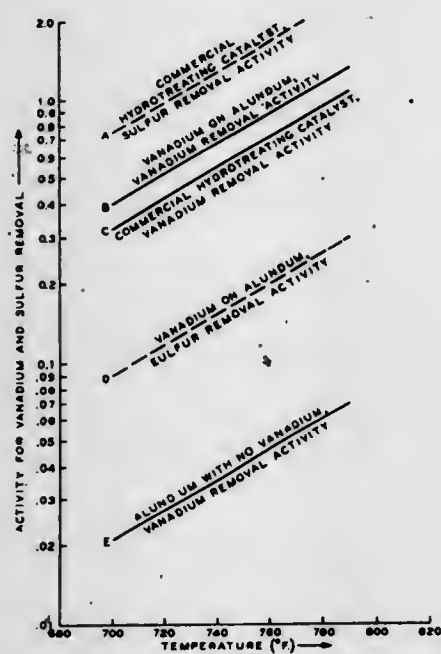
0.01 to 5.0 weight percent, based on said cracking component and calculated as the metal, of a hydrogenating component selected from the group consisting of gold and compounds of gold, and processes using said catalyst.

3,576,737

VANADIUM REMOVAL FROM HYDROCARBONS
David S. Mitchell, Fairfax, Calif., assignor to Chevron Research Company, San Francisco, Calif.
Filed Mar. 25, 1969, Ser. No. 810,241
Int. Cl. C10g 23/00, 25/00, 29/04

U.S. Cl. 208-251

3 Claims



A process for removing vanadium from a hydrocarbon feedstock containing vanadium as a soluble organometallic compound by contacting said hydrocarbon feedstock at an elevated temperature and pressure and in the presence of hydrogen with particles having a substantial number of macropores and containing vanadium which has been combined with the particles prior to processing of said hydrocarbon feedstock for vanadium removal.

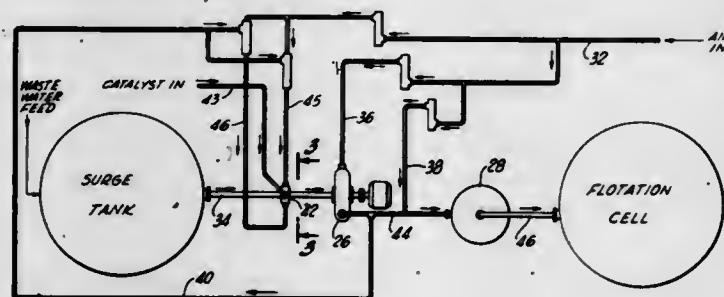
3,576,738

PROCESS FOR PURIFICATION OF OIL PRODUCTION WASTE WATER

John Duffy, Huntington Beach, Calif., assignor to The Signal Companies
Filed Aug. 4, 1969, Ser. No. 847,827
Int. Cl. C02b 1/34

U.S. Cl. 210-44

8 Claims



A method for removing residual oil and dissolved sulfides from oil production waste waters prior to disposal of the waste water into the ocean, by the injection of controlled amounts of air and soluble nickel catalyst into the waste water. The mixture is pumped under pressure into a flotation cell or tank where the pressure is released and the air effects oil separation and oxidation of the dissolved hydrogen sulfide.

3,576,739
COAGULATION AND SETTLING OF FINELY DIVIDED SOLIDS FROM AQUEOUS SUSPENSIONS THEREOF

John W. Ryznar, Clarendon Hills, Ill., assignor to Nalco Chemical Company, Chicago, Ill.
No Drawing. Application June 19, 1961, Ser. No. 117,843, which is a division of application Ser. No. 341,367, Mar. 9, 1953. Divided and this application Jan. 16, 1970, Ser. No. 3,485
Int. Cl. B01d 21/01

U.S. Cl. 210-54

4 Claims

Aqueous suspensions of finely divided solids which are predominantly inorganic are coagulated and settled by adding small amounts of a synthetic polymer in a water dispersible state having a weight average molecular weight of at least 10,000 and having a linear hydrocarbon structure containing a pyridine group in a side chain.

3,576,740

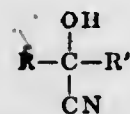
CYCLIC AMIDINE POLYMERS AS WATER CLARIFIERS

Robert R. Annand, St. Louis, and Derek Redmore, Ballwin, Mo., and Brian M. Rushton, Williamsburg, N.Y., assignors to Petrolite Corporation, Wilmington, Del.
No Drawing. Original application Oct. 22, 1965, Ser. No. 502,636, now Patent No. 3,531,496, dated Sept. 29, 1970. Divided and this application May 18, 1970, Ser. No. 38,581
Int. Cl. B01d 21/01

U.S. Cl. 210-54

7 Claims

The use of cyclic amidine polymers as water clarifiers. These polymers are formed by reacting cyanohydrins, such as



with cyclic amidine-forming polyamines to form poly-amino nitriles and by further reacting said so-formed polyamino nitriles intermolecularly with itself or with a polyamine under cyclic amidine-forming conditions.

3,576,741

USE OF PHOSPHORAMIDES AS WATER CLARIFIERS

Derek Redmore, Ballwin, Mo., assignor to Petrolite Corporation, Wilmington, Del.
No Drawing. Original application Nov. 25, 1966, Ser. No. 596,798, now Patent No. 3,524,908. Divided and this application Oct. 17, 1969, Ser. No. 867,374
Int. Cl. C02b 1/20

U.S. Cl. 210-54

10 Claims

The use of phosphoramides, such as those prepared from esters of phosphorous acid and ammonia or amines, as water clarifiers. These are particularly illustrated by phosphoramides, prepared by reacting dialkyl phosphites with polyamines.

3,576,742

POLYISOBUTYLENE NITROGEN OXIDE REACTION PRODUCTS AS LUBRICATING OIL DETERGENTS

Lewis R. Honnen, Novato, and Louis de Vries, Richmond, Calif., assignors to Chevron Research Company, San Francisco, Calif.
No Drawing. Filed July 15, 1968, Ser. No. 744,709
Int. Cl. C10m 1/20, 1/32

U.S. Cl. 252-51.5

9 Claims

Lubricating oil detergents are prepared by reacting an oil soluble branched long-chain aliphatic hydrocarbon olefin with nitrogen oxides, optionally treating the product with nitric acid or an amine, and then using the complex reaction product as the detergent.

3,576,743

LUBRICANT AND FUEL ADDITIVES AND PROCESS FOR MAKING THE ADDITIVES

Robert Widmer, Painesville, and Norman A. Melnhardt, Lyndhurst, Ohio, assignors to The Lubrizol Corporation, Wickliffe, Ohio
No Drawing. Filed Apr. 11, 1969, Ser. No. 815,484
Int. Cl. C10m 1/32; C101 1/22

U.S. Cl. 252-51.5

12 Claims

Oil-soluble composition produced by reacting at least one high molecular weight polycarboxylic acid acylating agent with at least one equivalent of a polyhydric alcohol to form a first reaction mixture which is then contacted with a hydroxy-substituted primary amine. The resulting products are useful primarily as lubricant and fuel additives. An oil-soluble composition prepared by reacting polyisobutylsuccinic anhydride with a polyhydric lower alkanol to form a first reaction mixture which is then contacted with trimethylolaminomethane is representative.

3,576,744

ELECTROSTATIC DEVELOPING COMPOSITION CONTAINING TWO DIFFERENT NEGATIVE DIRECTING RESINS

Robert F. Sharrock and Joseph W. Castillo, Parsippany, N.J., assignors to Clonay Corporation
No Drawing. Filed Sept. 21, 1967, Ser. No. 669,376
Int. Cl. G03g 9/04

U.S. Cl. 252-62.1

2 Claims

A liquid developer composition for developing latent electrostatic images to visible images. The composition contains two different negative directing resins, pigment, a negative charge control agent and a carrier liquid.

3,576,745

MANUFACTURE OF HARD LEAD FERRITES
Michael Tokar, Jr., Los Alamos, N. Mex., assignor to International Lead Zinc Research Organization, Inc., New York, N.Y.
Filed May 20, 1968, Ser. No. 730,535
Int. Cl. H01f 1/11

U.S. Cl. 252-62.58

13 Claims

The present application discloses a method for making an essentially unoriented hard lead ferrite by calcining a mixture of lead oxide and iron oxide powders in the mole ratio about 1:4.5 to 1:6 PbO to Fe₂O₃ equivalent, at a temperature of about 850° C. to 1150° C., preferably 1000°-1075° C., thereby to form a PbO-iron oxide calcine. Into this calcine there is then incorporated any of several additive agents which improve the magnetic properties of the final ferrite, particularly the maximum energy product

(B_dH_d)_{max}

These additives include lead silicate, silica (quartz), lead borate and B₂O₃. The amount of the additive is such as to effect in the final sintered ferrite an overall mole ratio in the range of about 1:3.5 to 1:5.5 PbO to Fe₂O₃ and about 0.2 to 0.9% by weight of SiO₂ or B₂O₃ (combined with the PbO). The calcined material is then ground and pressed into slugs and the slugs are sintered at a temperature in the range of about 1000 to 1150° C., preferably about 1050° to 1150° C., to form a sintered hard lead ferrite.

3,576,746

FUNCTIONAL FLUIDS CONTAINING TETRAMETHYL SILANES FOR PREVENTING CAVITATION DAMAGE

Robert L. Peeler, Albany, Neal W. Furby, Berkeley, and Douglas Godfrey, San Rafael, Calif., assignors to Chevron Research Corporation, San Francisco, Calif.
No Drawing. Filed Feb. 6, 1968, Ser. No. 703,274
Int. Cl. C09k 3/00; C23f 11/18

U.S. Cl. 252-78

13 Claims

Functional fluid containing a minor amount of tetramethyl silanes as a cavitation-erosion inhibiting additive.

3,576,747

DRY CLEANING SOLVENT CONTAINING A BLEACH

Wilhelm E. Walles, Midland, and Elton D. Prueter, Saginaw, Mich., assignors to The Dow Chemical Company, Midland, Mich.
No Drawing. Filed Sept. 9, 1968, Ser. No. 758,610
Int. Cl. C11d 7/54

U.S. Cl. 252-104

4 Claims

This application relates to drycleaning solvents containing N-bromo or chloro-N-alkyl carboxamides, or the N-chloro and N-bromo derivatives of 2-oxazolidinone, 2-morpholinone and 2-oxazinidinone as bleaching agents.

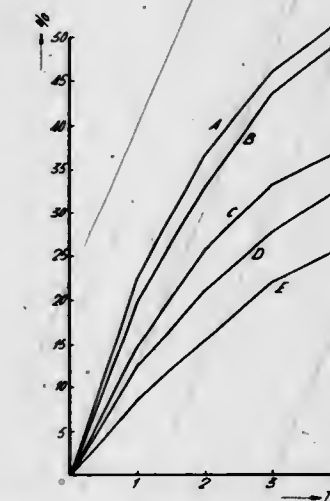
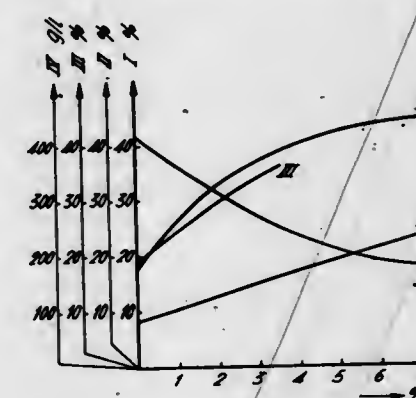
3,576,748

FREE-FLOWING GRANULAR DETERGENT COMPOSITIONS CONTAINING NTA AND SOAP

Sigvard Gunnar Petersson, Nykoping, Sweden, assignor to Lever Brothers Company, New York, N.Y.
Filed Apr. 1, 1969, Ser. No. 812,125
Claims priority, application Luxembourg, Apr. 3, 1968, 55,829
Int. Cl. C11d 9/14, 9/30, 11/00

U.S. Cl. 252-110

2 Claims



A granular detergent composition with improved free-flowing properties is obtained by making a slurry of non-ionic synthetic detergent, anionic synthetic detergent and building mixture of a water soluble alkali salt of nitrilotriacetic acid and an alkaline tripolyphosphate, heat-drying the slurry and then adding soap to the heat-dried composition.

3,576,749

SOAP TOILET BARS HAVING IMPROVED SMEAR CHARACTERISTICS

David Robert Megson, Chandler's Ford, Winchester, England, and George Sebastian Speidel III and Bruce Lawrence Redd, Hamilton, Ohio, assignors to The Procter & Gamble Company, Cincinnati, Ohio
No Drawing. Continuation-in-part of application Ser. No. 706,770, Feb. 20, 1968. This application Feb. 6, 1969, Ser. No. 797,249
Int. Cl. C11d 9/10, 9/48, 13/00

U.S. Cl. 252-132

12 Claims

Milled soap bars containing free fatty acid, high levels of sodium chloride and high moisture levels, said bars

being processed at temperatures of from 110° F. to about 140° F.; processes for mixing soap bar formulations without mechanically overworking the soap.

3,576,750

COMPOSITIONS FOR POLISHING ACRYLIC MATERIALS

Joseph C. Muhler, Indianapolis, Ind., assignor to Indiana University Foundation, Bloomington, Ind.
No Drawing. Continuation-in-part of application Ser. No. 796,582, Feb. 4, 1969. This application Apr. 30, 1969, Ser. No. 820,607

Int. Cl. C11d 3/12, 7/10

U.S. Cl. 252—140 8 Claims
Improved acrylic polishing preparations employ a major amount of zirconium silicate ($ZrSiO_4$) and minor amounts of micronized zirconium dioxide (ZrO_2) and zirconium oxychloride ($ZrOCl_2 \cdot 8H_2O$). Such preparations are especially useful in denture cleanser compositions and in other agents useful in cleaning and polishing acrylic resin materials and the like.

3,576,751

DRAIN CLEANER

Peter P. Noznick, Evanston, and George C. Kyros, Chicago, Ill., assignors to Beatrice Foods Co., Chicago, Ill.

No Drawing. Filed May 10, 1968, Ser. No. 728,318
Int. Cl. C09d 9/00; C11d 7/22, 7/50

U.S. Cl. 252—162 10 Claims
A drain cleaner composition is prepared containing finely divided sodium hydroxide in a chlorinated hydrocarbon solvent, preferably 1,1,1-trichloroethane, or N-methyl-2-pyrrolidone. Preferably, powdered aluminum is included. A hydrocarbon diluent can be added and silica can be added as a thickener to get the requisite body and retard sludge formation.

3,576,752

CHEMILUMINESCENT SMOKES

Urho Albert Lehtikoinen, Detroit, Mich., assignor to Ethyl Corporation, New York, N.Y.
No Drawing. Filed June 29, 1967, Ser. No. 649,820
Int. Cl. C09k 3/00

U.S. Cl. 252—188.3 10 Claims
Chemiluminescent smoke, that is, a smoke visible both by day and night, is produced when a composition consisting essentially of (a) an aluminum alkyl, (b) an ether or an amine complexing agent, and (c) a pyrrole, is contacted with air and water.

3,576,753

CHEMILUMINESCENT SMOKES

Urho Albert Lehtikoinen, Detroit, Mich., assignor to Ethyl Corporation, New York, N.Y.
No Drawing. Filed June 29, 1967, Ser. No. 649,836
Int. Cl. C09k 3/00

U.S. Cl. 252—188.3 16 Claims
Chemiluminescent smoke, that is, a smoke visible both by day and night, is produced when a composition consisting essentially of (a) an aluminum alkyl, (b) an ether or an amine complexing agent, and (c) an indole, is contacted with air and water.

3,576,754

CHEMILUMINESCENT SMOKES

Urho Albert Lehtikoinen, Detroit, Mich., assignor to Ethyl Corporation, New York, N.Y.
No Drawing. Filed June 29, 1967, Ser. No. 649,838
Int. Cl. C09k 3/00

U.S. Cl. 252—188.3 16 Claims
Chemiluminescent smoke, that is, a smoke visible both by day and night, is produced when a composition con-

sisting essentially of (a) an aluminum alkyl, (b) an ether or an amine complexing agent, and (c) an acridine, is contacted with air and water.

3,576,755

PHOTOCHROMISM IN PLASTIC FILM CONTAINING INORGANIC MATERIALS

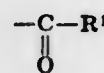
Lawrence Joseph Patella and Sydney Arthur Giddings, Cincinnati, Ohio, Satyendra Kumar Deb, Stamford, Conn., and John Andrew Chopoorian, Franklin Lakes, N.J., assignors to American Cyanamid Company, Stamford, Conn.

No Drawing. Continuation of application Ser. No. 399,073, Sept. 24, 1964. This application May 7, 1968, Ser. No. 727,371
Int. Cl. G02b 7/10

U.S. Cl. 252—300 10 Claims
Compositions of matter comprising a polymeric material having dispersed throughout the body thereof metal compounds of the formula



wherein M is niobium, tantalum, tungsten, hafnium or titanium, X is a halide, R is an alkyl radical of 1-2 carbon atoms, inclusive, an aryl radical of 6-10 carbon atoms, inclusive, or an



radical, R' is an alkyl radical of 1-12 carbon atoms, inclusive or an aryl radical of 6-10 carbon atoms, inclusive, m and p are whole, positive integers of from 0-6, inclusive, and n is a whole positive integer of from 0-2, inclusive, the total of 2n plus m plus p being equal to the valence of the metal M, at least one of m and p being at least 1, are disclosed.

3,576,756

FLUOCOMPLEXES OF TITANIUM, SILICON, TIN AND GERMANIUM, ACTIVATED BY TETRAVALENT MANGANESE

Michael E. Russo, St. Louis, Mo., assignor to Mallinckrodt Chemical Works, St. Louis, Mo.
Filed June 12, 1968, Ser. No. 736,504
Int. Cl. C09k 1/54, 1/56, 1/60

U.S. Cl. 252—301.4 9 Claims
Activated fluocomplexes of the type $M_2XF_6:Mn$, where X represents silicon, titanium or tin or mixtures of these elements with each other or with germanium, M represents a monovalent cation and Mn is tetravalent, are yellowish, crystalline phosphors excited by U.V. and visible radiation to fluoresce strongly in the red. $K_2TiF_6:Mn$ is typical. It responds strongly to excitation by radiation of 3150, 3650 and 4550 Å.U. wavelengths. Its principal emission peak is at 6320 Å.U., with secondary peaks at 6140 and 6360 Å.U. The phosphors may be prepared by mixing, in solution, MnF_2 , H_2XF_6 and the fluoride of the desired cation(s), and crystallizing out the phosphor product.

3,576,757

NOVEL FLUORESCENT PHOSPHOR COMPOSITIONS

Jesse J. Brown, Jr., Blacksburg, Va., assignor to Sylvania Electric Products Inc.
Filed June 14, 1968, Ser. No. 737,076
Int. Cl. C09k 1/04

U.S. Cl. 252—301.4 3 Claims
Phosphors corresponding to the formula:



where A is potassium, sodium, and/or lithium and where in aluminum, silicon and/or germanium may replace

gallium in an amount not exceeding 70% thereof and wherein the total cation to anion ratio is about 3 to 4. The phosphors respond to ultraviolet radiation and cathode rays and are useful in mercury vapor lamps and cathode ray tubes.

3,576,758

TREATMENT OF POLYPEPTIDE-CONTAINING HYDROPHILIC POLYMERIC CAPSULE WALL MATERIAL WITH URANYL AND VANADYL COMPOUNDS

Donald D. Emrick, Kettering, Ohio, assignor to The National Cash Register Company, Dayton, Ohio
No Drawing. Filed Oct. 17, 1966, Ser. No. 586,943
Int. Cl. A01n 17/00; B01j 13/02; B44d 1/44

U.S. Cl. 252—316 6 Claims
A process is provided for manufacturing novel, minute, capsules en masse wherein preformed capsules having walls of polypeptide-containing hydrophilic polymeric material are further treated by uranyl or vanadyl ions in an aqueous liquid vehicle. Capsules produced by practice of this process have walls which exhibit decreased water solubility, decreased swelling in water, and decreased sensitivity to high relative humidity.

3,576,759

PROCESS FOR EN MASSE PRODUCTION OF SPHERULES BY DESICCATION

Thomas C. Powell, West Alexandria, and Jerrold L. Anderson, Dayton, Ohio, assignors to The National Cash Register Company, Dayton, Ohio
No Drawing. Filed Apr. 12, 1968, Ser. No. 721,044
Int. Cl. B01j 13/02; B44d 1/02; A61k 9/04

U.S. Cl. 252—316 6 Claims
A method is provided for manufacturing solid spherules, en masse, in a liquid spherule processing vehicle by a technique employing desiccation. The process includes the steps of providing, dispersed in the spherule processing vehicle, "preliminary capsules" containing, within capsule walls of polymeric material, a liquid solution or slurry of the solid material to be spherified and then removing the contained liquid to yield, substantially spherical capsules, i.e., spherules, of dry, solid material. Production of the preliminary capsules is accomplished by well-known encapsulating methods utilizing, for example, liquid-liquid phase separation. Removal of the contained liquid is accomplished, in one embodiment of the novel process, by introducing particles of a solid, insoluble, desiccating material into the dispersion of preliminary capsules in spherule processing vehicle. The contained liquid is, thereby, attracted through the preliminary capsule wall and, being transported by the spherule processing vehicle, is sorbed by the desiccating material. Spherules produced by this invention can be made to include, among many other things, fertilizers, insecticides, pesticides, flavors, fragrances, foods and pharmaceutical products.

3,576,760

WATER SOLUBLE ENTRAPPING

Francis E. Gould, Princeton, and Thomas H. Shepherd, Hopewell, N.J., assignors to National Patent Development Corporation, New York, N.Y.
No Drawing. Filed June 13, 1969, Ser. No. 833,182
Int. Cl. B01j 1/16; C09k 3/00; A61k 15/00

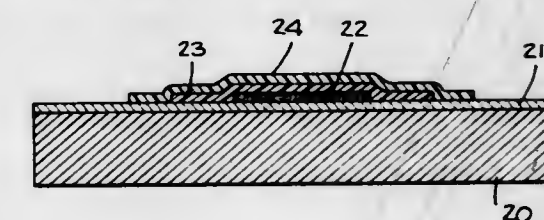
U.S. Cl. 252—403 4 Claims
Materials are entrapped in water soluble hydroxyalkyl acrylate or methacrylate polymers to provide ready sources of the material by the deletion of water. Thus, there can be entrapped drugs, pesticides, flavoring agents and fragrances.

3,576,761

3,576,761
THERMOMETRIC COMPOSITIONS COMPRISING ONE MESOMORPHIC SUBSTANCE, ONE CHOLESTERYL HALIDE, AND AN OIL SOLUBLE DYE SELECTED FROM THE GROUP CONSISTING OF DISAZO, INDULENE, AND NIGROSINE DYES
Frederick Davis, Pittsburgh, Pa., assignor to Liquid Crystal Industries, Turtle Creek, Pa.
Filed Mar. 18, 1969, Ser. No. 808,111
Int. Cl. G01k 11/16, 11/18

U.S. Cl. 252—408

16 Claims



Novel thermometric compositions capable of retaining an indication that they have exceeded a given temperature, which compositions comprise a mixture of at least one mesomorphic substance and at least one cholesteryl halide, the mixture exhibiting color in the cholesteric state at a first temperature and changing from that state at a second temperature, and an amount of oil-soluble dye sufficient to prevent the mixture from reverting to the color of the cholesteric state when the compositions are returned to the first temperature; thermometric elements comprising such compositions; and thermometric articles comprising said compositions.

3,576,762

CATALYSTS OF MODIFIED BASIC TRIVALENT METAL ACETATES

Françoise Maguet-Martin, Garches, Maseh Osgan, Ruell-Malmaison, and Philippe Teyssie, Le Vesinet, France, assignors to Institut Français du Pétrole, des Carburants et Lubrifiants, Ruell-Malmaison, France
No Drawing. Original application Feb. 14, 1966, Ser. No. 527,078, now Patent No. 3,427,260, dated Feb. 11, 1969. Divided and this application July 2, 1968, Ser. No. 766,343
Claims priority, application France, Feb. 19, 1965, 6,403

Int. Cl. C08g 23/14

U.S. Cl. 252—431 16 Claims
There are provided polymerization catalysts especially useful for the polymerization of cyclic ethers. These catalysts have the formula $M_{n+2n}O_{7+3n}(OH)_2A_2$ wherein A is a carboxylic acid monovalent radical, M is a trivalent metal and n is a number comprised between 0 and 10. These catalysts are produced by hydrolyzing a basic trivalent metal carboxylate, e.g. basic iron (III) acetate, and then dehydrating the resultant hydrolyzed carboxylate. Aluminum alcoholate or phenate may be added thereto.

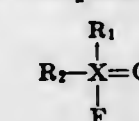
3,576,763

ORGANIC VANADYL FLUORIDES AND THEIR USE IN COORDINATION CATALYSTS

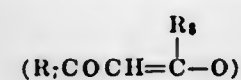
Aaron Chung Liong Su, Wilmington, Del., assignor to E. I. du Pont de Nemours and Company, Wilmington, Del.
No Drawing. Original application June 10, 1966, Ser. No. 556,565, now Patent No. 3,455,974, dated July 15, 1969. Divided and this application Jan. 22, 1969, Ser. No. 822,762

Int. Cl. C08f 3/02

U.S. Cl. 252—431 5 Claims
Coordination catalysts for the polymerization of α -olefins are prepared by mixing an organoaluminum compound with a vanadyl compound having the formula:



wherein R_1 and R_2 are alkoxy groups,



wherein R_1 and R_2 are lower alkyl, aryl or taken together, lower alkylene, or R_1 and R_2 taken together are an α,ω -alkylene dioxy group.

3,576,764

CATALYST FOR THE OXIDATION OF OLEFINS TO UNSATURATED ALDEHYDES AND ACIDS

Goichi Yamaguchi, Nakano-ku, and Shigeo Takenaka, Tokyo, Japan, assignors to Nippon Kayaku Company Ltd., Tokyo, Japan

No Drawing. Continuation-in-part of application Ser. No. 487,611, Sept. 15, 1965. This application May 16, 1968, Ser. No. 729,506

Int. Cl. B01j 11/82

U.S. Cl. 252-437 5 Claims
Monolefins such as propylene and isobutylene are converted to the corresponding unsaturated aldehydes and carboxylic acids in the presence of a catalyst of the composition:



3,576,765

PROCESSES FOR PREPARING MIXED SULPHIDES, SOLID SOLUTIONS OF SIMPLE AND MIXED SULPHIDES OF TRANSITION METALS AND METALLIC OXYSULPHIDES, AND NEW COMPOUNDS OF THIS TYPE

Etienne Vallet, Jacques Maurice Paris, and René Antoine Paris, Lyon, France, assignors to Centre National de la Recherche Scientifique, Paris, France

Filed June 13, 1966, Ser. No. 557,047

Claims priority, application France, June 14, 1965, 20,659; July 27, 1965, 26,194; June 10, 1966, 65,075

Int. Cl. B01j 11/74

U.S. Cl. 252-439 10 Claims
The invention relates to a process for preparing sulphurated products containing at least two metals and which is selected from the group consisting of thiochromites, thiovanadites and thiotitanates of mono- and divalent metals, of solid solutions of simple and mixed sulphides of transition metals and metallic oxysulphides, which comprises heating progressively thermally decomposable compositions containing the metallic atoms under the same ratio as in the end products in an hydrogen sulphide containing atmosphere, to a predetermined temperature ranging from 200 to 1000° C. and maintaining the heated product at said predetermined temperature until the content in oxygen, if any, of the heated product has become substantially constant.

3,576,766

DEHYDROGENATION METHOD AND CATALYTIC COMPOSITE FOR USE THEREIN

Richard E. Rausch, Mundelein, Ill., assignor to Universal Oil Products Company, Des Plaines, Ill.

No Drawing. Continuation-in-part of application Ser. No. 819,114, Apr. 24, 1969. This application July 9, 1969, Ser. No. 840,471

Int. Cl. B01j 11/74

U.S. Cl. 252-439 6 Claims
Dehydrogenatable hydrocarbons are dehydrogenated by contacting same at dehydrogenation conditions with a catalytic composite, comprising a combination of catalytically effective amounts of a platinum group component, a rhenium component, and a tin component with

a porous carrier material. A specific example of the catalytic composites disclosed herein is a combination of a platinum component, a rhenium component, a tin component, and an alkali or alkaline earth component with an alumina carrier material wherein the components are present in amounts sufficient to result in the catalytic composite containing, on an elemental basis, 0.01 to 1 wt. percent platinum, 0.01 to 1 wt. percent rhenium, 0.01 to 5 wt. percent tin, and 0.01 to 5 wt. percent of the alkali or alkaline earth metal.

3,576,767

CARBON CATALYST COMPOSITION

Charles G. Summers, Scott Depot, W. Va., assignor to Monsanto Company, St. Louis, Mo.

No Drawing. Continuation-in-part of application Ser. No. 370,049, May 25, 1964, and a division of application Ser. No. 542,205, Apr. 13, 1966, now Patent No. 3,414,616, dated Dec. 3, 1968. This application Apr. 11, 1968, Ser. No. 736,877

Int. Cl. B01j 11/06, 11/08

U.S. Cl. 252-447 4 Claims
Catalyst compositions comprising a catalytic amount of a platinum metal deposited on carbon co-catalyst in catalytic amount consisting essentially of carbon having a bound acidity of at least about 0.4 milliequivalent per gram. The composition catalyzes the formation of imines, particularly in a process of reductive alkylation.

3,576,768

NOVEL ALUMINA HYDRATE, A NOVEL ALUMINA OBTAINED FROM THE ALUMINA HYDRATE, A CATALYST CONTAINING THE NOVEL ALUMINA AND THE METHOD OF PREPARING THE SAME

William L. Kehl, Indiana Township, and Meredith M. Stewart, Penn Hills Township, Pa., assignors to Gulf Research & Development Company, Pittsburgh, Pa.

No Drawing. Continuation of application Ser. No. 392,051, Aug. 25, 1964. This application Oct. 29, 1969, Ser. No. 871,742

The portion of the term of the patent subsequent to Oct. 6, 1981, has been disclaimed

Int. Cl. B01j 11/06, 11/32

U.S. Cl. 252-465 11 Claims
A novel alumina hydrate obtained by hydrothermally treating a crystalline alumina hydrate containing from 1.2 to 2.6 mols of water of hydration. The hydrothermal treatment is conducted by heating the crystalline alumina hydrate in the presence of water at a temperature in the range from 225° to 700° F. and sufficient to vaporize the water under autogenous pressure and thereafter drying the hydrothermally treated crystalline alumina hydrate. A novel alumina is obtained from the hydrothermally treated alumina hydrate by calcining such material.

3,576,769

SEMICARBONIZATION OF THERMALLY STABLE AROMATIC POLYMERS

Stephen S. Hirsch and John R. Holsten, Raleigh, N.C., assignors to Monsanto Company, St. Louis, Mo.

No Drawing. Filed May 2, 1967, Ser. No. 635,381

Int. Cl. C08g 20/38, 53/08

U.S. Cl. 260-2.5 11 Claims
Thermally stable aromatic polyamides in fiber or fabric form are subjected to a controlled heat treatment in air under moderate conditions, causing semi- or partial carbonization to occur, and the resulting fibers or fabrics are essentially non-flammable, thermally stable, chemically inert and exhibit good dimensional stability at elevated temperatures. Fibrous products obtained by this process

are useful in temperature resistant composite structures and as protective covering for articles that may be exposed to flames.

3,576,770

FLAME-RETARDANT RESIN COMPOSITIONS

Anthony John Evans, Llangollen, Wales, and William Rees Foster, Cwmbran, England, assignors to Monsanto Chemicals Limited, London, England

No Drawing. Filed Apr. 11, 1968, Ser. No. 720,469

Claims priority, application Great Britain, Apr. 27, 1967, 19,492/67

Int. Cl. C08f 47/10; C08j 1/18

U.S. Cl. 260-2.5 13 Claims
Flame-retardant compositions comprising a normally flammable synthetic resin, especially a foamable synthetic resin, and, as a flame-retardant agent, an ar-halo, ar-alkenyloxy aromatic compound. Also, processes for preparing the compositions.

3,576,771

SELF-EXTINGUISHING POLYMER COMPOSITIONS CONTAINING BROMINATED ARYLIDENE KETONES

Hilda Howell and Walter M. Kutz, Pittsburgh, Pa., assignors to Koppers Company, Inc.

No Drawing. Filed May 14, 1968, Ser. No. 728,882

Int. Cl. C08f 47/10; C09k 3/28

U.S. Cl. 260-2.5 10 Claims
Solid organic polymers normally susceptible to burning are rendered self-extinguishing by incorporating therein a brominated arylidene ketone such as a brominated benzilidene or cinnamylidene ketone; for example, 1,5-diphenyl-1,2,4,5-tetrabromo-3-pentanone. The self-extinguishing agents useful in the invention are unexpectedly stable to hydrolysis, yet are highly reactive as self-extinguishing agents.

3,576,772

CELLULOSE ESTER-ALLYL ETHER CONTAINING POLYESTER VARNISH SOLUTIONS

Karl Raichle and Wolfgang Deninger, Krefeld-Bockum, Bernhard Hess, Krefeld, and Hermann Schnell, Krefeld-Uerdingen, Germany, assignors to Farbenfabriken Bayer Aktiengesellschaft, Leverkusen, Germany

No Drawing. Filed Mar. 12, 1968, Ser. No. 712,395

Claims priority, application Germany, Mar. 30, 1967, F 51,975

Int. Cl. C08b 21/08; C08g 39/10

U.S. Cl. 260-16 14 Claims
Varnish solutions based on ethylene dicarboxylic acid polyesters having a content of allyl ether compounds together with a cellulose ester in which at least 50% of the esterifiable hydroxyl groups are esterified with aliphatic carboxylic acids containing at least three carbon atoms or a cellulose mixed ester in which at least 40% of the esterifiable hydroxyl groups are esterified with said aliphatic carboxylic acids and at least 10% of the hydroxyl groups thereof are esterified with acetic acid, said varnish solution dust-drying at room temperature in a relatively short time.

3,576,773

POLYESTER BASED FIBERS COMPRISING A NON-LINEAR BRANCHED ETHYLENE TEREPHTHALATE POLYMERS

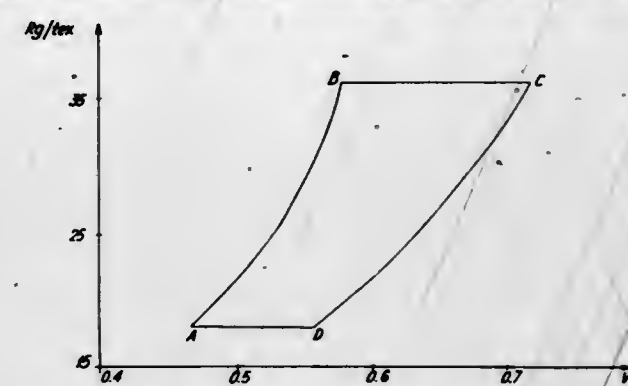
Yves Vaginay, Lyon, France, assignor to Societe Rhodiaceta, Paris, France

Filed June 3, 1969, Ser. No. 829,954

Claims priority, application France, June 4, 1968, 50,064

Int. Cl. C08g 17/04

U.S. Cl. 260-22 3 Claims
This invention provides novel polyester fibers which



ethylene terephthalate of specified viscosity characteristics, and having specified tensile strength.

3,576,774

MODIFICATION OF POLYESTERS WITH CYCLIC TRIS(ETHYLENE TEREPHTHALATE)

Richard E. Myers, Akron, and Jack D. Hauenstein, Stow, Ohio, assignors to The Goodyear Tire & Rubber Company, Akron, Ohio

No Drawing. Filed Oct. 27, 1969, Ser. No. 869,874

Int. Cl. C08g 17/14

U.S. Cl. 260-22 10 Claims
Polyethylene terephthalate is increased in molecular weight by treating the same after polycondensation with 1 to 50 weight percent of cyclic tris(ethylene terephthalate).

3,576,775

LOW TEMPERATURE CURING WOOD COATINGS

Rolf Jaegersberg, Louisville, Ky., assignor to Celanese Coatings Company, New York, N.Y.

No Drawing. Filed Aug. 14, 1969, Ser. No. 850,252

Int. Cl. C09d 3/52, 3/66

U.S. Cl. 260-21 7 Claims
A coating composition comprising a blend of an alkyd resin, a styrene-allyl alcohol copolymer, a hexa-alkoxy methyl melamine resin and an alkoxy urea-aldehyde resin dissolved in a solution of a non-reactive low boiling solvent and a low boiling alcohol is prepared. The composition is applied to wood products and is cured by low temperature baking.

3,576,776

ADHESIVE APPLICATOR CRAYONS

Janos Arpad Muszik, Dusseldorf, and Wolfgang Dierichs, Dusseldorf-Holthausen, Germany, assignors to Henkel & Cie GmbH, Dusseldorf-Holthausen, Germany

Filed Dec. 19, 1968, Ser. No. 785,262

Claims priority, application Austria, Feb. 1, 1968, A 998/68

Int. Cl. C09j 3/00, 3/14

U.S. Cl. 260-22 9 Claims



An adhesive applicator crayon comprising a shape-giving base consisting of a gel of a gel-forming salt of an

aliphatic carboxylic acid having from 8 to 36 carbon atoms with a cation selected from the group consisting of alkali metals, ammonia and lower alkylamines, with a liquid selected from the group consisting of water, water-miscible organic solvents and mixtures thereof, and a content of an adhesive component selected from the group consisting of water-soluble and water-dispersible adhesives.

3,576,777

PAINTS WITH THIXOTROPIC PROPERTIES

Wolfram Neumann, Leverkusen, Erich Zankl, Cologne-Riehl, Hans Joachim Kreuder, Krefeld, and Heinz Ehring, Krefeld-Gartenstadt, Germany, assignors to Farbenfabriken Bayer Aktiengesellschaft, Leverkusen, Germany

No Drawing. Continuation-in-part of application Ser. No. 659,339, Aug. 9, 1967. This application Oct. 7, 1969, Ser. No. 864,554

Claims priority, application Germany, Aug. 30, 1966, F 50,076

Int. Cl. C09d 3/66, 3/72, 5/04

U.S. Cl. 260—22

4 Claims

Thixotropic unsaturated oil modified alkyd resins containing from about one percent to about 30 percent by weight of a polyurethane prepared from an organic diisocyanate and a glycol are utilized to prepare paints having thixotropic properties even when large quantities of solvent are used and during oven drying.

3,576,778

NOVEL HEAT SEAL ADHESIVES BASED ON POLYCAPROLACTONE

Irwin J. Davis, Plainfield, N.J., assignor to National Starch and Chemical Corporation, New York, N.Y.

No Drawing. Filed Oct. 13, 1969, Ser. No. 865,967

Int. Cl. C08f 45/52, 29/24

U.S. Cl. 260—28.5

8 Claims

Novel heat seal adhesives based on polycaprolactone are described; said adhesives being characterized by their low heat seal temperatures and non-blocking properties.

3,576,779

AMINE-FUNCTIONAL ORGANOPOLYSILOXANE, SALT THEREOF AND POLISH COMPOSITION THEREFROM

Norman G. Holdstock, Schenectady, Raymond J. Thimineur, Scotia, and Abe Berger, Schenectady, N.Y., assignors to General Electric Company

No Drawing. Continuation-in-part of application Ser. No. 693,140, Dec. 26, 1967. This application July 17, 1968, Ser. No. 745,376

Int. Cl. C08g 31/24; C09g 1/04, 1/12

U.S. Cl. 260—29.2

15 Claims

Organopolysiloxane copolymers are prepared by the partial hydrolysis and condensation of a silanol chain-stopped polydiorganosiloxane, an aminoalkyltrialkoxysilane, and an aminoalkoxyalkyltrialkoxysilane. These copolymers are converted to partial salts by reaction with aliphatic carboxylic acids and the partial salts are used in detergent resistant polish formulations of improved rub-out and gloss.

3,576,780

PROCESSABLE BISPHENOL POLYESTER COMPOSITIONS

Winston J. Jackson, Jr., Kingsport, Tenn., assignor to Eastman Kodak Company, Rochester, N.Y.

No Drawing. Filed Mar. 28, 1969, Ser. No. 811,667

Int. Cl. C08g 51/50

U.S. Cl. 260—30.6

16 Claims

The composition of matter comprising bisphenol polyester material, the acid portion of which comprises at least in part a cyclic dicarboxylic acid component, blended with from about 2 to about 30% by weight of triaryl

phosphate has reduced glass transition and heat distortion temperatures which make the composition more readily processable.

3,576,781

PROCESS FOR PREPARING FUSIBLE POLYHYDROXY-POLYETHER RESINS

Darrell D. Hicks, Louisville, Ky., assignor to Celanese Coatings Company, New York, N.Y.

No Drawing. Continuation-in-part of application Ser. No. 771,267, Oct. 28, 1968. This application Feb. 2, 1970, Ser. No. 8,003

Int. Cl. C08g 30/10

U.S. Cl. 260—32.8

12 Claims

A process for preparing polyhydroxy-polyether resins, useful as film forming and coating compositions, by reacting a polyepoxide compound with a polyhydric alcohol in a ketone solvent using a Lewis acid catalyst.

3,576,782

REINFORCING FIBER-CONTAINING INJECTION MOLDABLE, THERMOPLASTIC RESINOUS DRY BLEND COMPOSITION AND PROCESS OF PREPARING

Robert A. Molbert, Cuyahoga Falls, and George H. Wear, Mogadore, Ohio, assignors to The General Tire & Rubber Company

No Drawing. Filed May 2, 1969, Ser. No. 821,496

Int. Cl. C08f 45/10

U.S. Cl. 260—41

5 Claims

This invention concerns a reinforcing fiber-containing, injection moldable, vinyl halide dry-blend composition comprising a homogeneous mixture of a polymeric material comprised predominantly of a polyvinyl halide resin and lesser amounts of other resins, a processing aid, a heat stabilizer, and staple reinforcing fibers and of a process for making this composition.

3,576,783

ORGANIC COMPOSITIONS CONTAINING PHOSPHINE OXIDE ANHYDRIDES

Al F. Kerst, Denver, Colo., assignor to Monsanto Company, St. Louis, Mo.

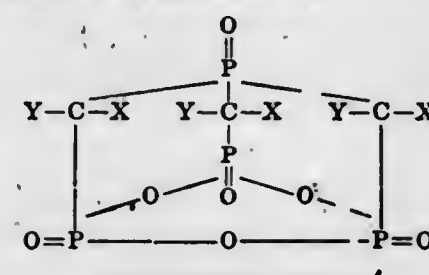
No Drawing. Filed June 11, 1969, Ser. No. 832,417

Int. Cl. C09k 3/28

U.S. Cl. 260—45.8

9 Claims

This invention covers organic compositions containing, for example, polyurethane and a phosphine oxide anhydride such as tris(alkylidene phosphonyl) phosphine oxide anhydride having the formula



3,576,784

FLAMEPROOFED CRYSTALLINE COPOLYMERS OF PROPYLENE AND ETHYLENE

Walter E. Gloor, Wilmington, Del., assignor to Hercules Incorporated, Wilmington, Del.

No Drawing. Filed Mar. 19, 1969, Ser. No. 808,695

Int. Cl. C08f 45/56

U.S. Cl. 260—45.75

4 Claims

This invention relates to flameproofed thermoplastic polymer compositions comprising (1) a crystalline copolymer of propylene and ethylene containing from 7-25% by weight of ethylene and having a melt flow rate (ASTM D-1238) less than 3; (2) a chlorinated flameproofing compound containing at least 50% by weight chlorine in an amount to provide from 11-16% by weight chlorine in the total composition; and (3) antimony oxide

in the amount of 10-25% by weight of said copolymer, said composition being characterized by having a melt flow rate (ASTM D-1238) no higher than 2.2; a density no higher than 1.16, and a deflection temperature (ASTM D-648) at least as high as that of component (1).

3,576,785

ORGANOTIN STABILIZED RESIN COMPOSITIONS

Lewis B. Weisfeld, Highland Park, N.J., assignor to Carlisle Chemical Works, Inc., Reading, Ohio

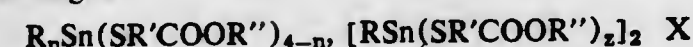
No Drawing. Original application June 3, 1966, Ser. No. 554,965, now Patent No. 3,478,071, dated Nov. 11, 1969. Divided and this application Sept. 4, 1969, Ser. No. 876,150

Int. Cl. C08f 45/62

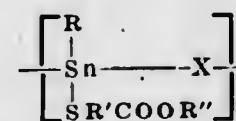
U.S. Cl. 260—45.75

8 Claims

Heat and light stable halogen-containing resin compositions are stabilized by the reaction product of an organotin mercaptoacid derivative selected from the group consisting of



and



wherein R and R'' are alkyl radicals. R' is selected from the group consisting of an alkylene group of at least 2 methylene groups, X is a member of the group consisting of oxygen and sulfur, n is an integer from 1 to 3 and y designates the degree of polymerization, with an organotin compound selected from the group consisting of organotin oxides, monohydrocarbyltin oxides, and hydrocarbyl stannic acids and esters.

3,576,786

EPOXY-AZIRIDINE POLYMER PRODUCT

Sarkis H. Kalfayan, La Canada, and Barbara A. Campbell, Anaheim, Calif., assignors to the United States of America as represented by the Administrator of the National Aeronautics and Space Administration

No Drawing. Filed Sept. 27, 1968, Ser. No. 763,355

Int. Cl. C08g 30/14

U.S. Cl. 260—47

1 Claim

A polymeric product resulting from the reaction of polyfunctional epoxy resins with polyfunctional aziridine compounds.

3,576,787

METHOD OF CROSSLINKING POLYMERS

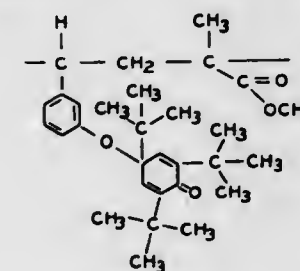
Margaret A. Da Rooge, Dearborn Heights, and Lee R. Mahoney, Livonia, Mich., assignors to Ford Motor Company, Dearborn, Mich.

Filed Feb. 25, 1969, Ser. No. 802,082

Int. Cl. C08f 7/02, 27/00; C08g 17/00

U.S. Cl. 260—47

4 Claims



This invention relates to a method of controllably crosslinking essentially linear polymers to obtain desired physical and chemical properties in the finished product. This invention requires the introduction into a molecule of a prepolymer a limited number of crosslinking quinol ether molecules which upon molding thermally decompose and simultaneously crosslink to a desired extent the linear portions of the polymer.

3,576,788

POLYMERIC COMPOSITIONS PREPARED BY REACTING ARALKYL ETHERS WITH PHENOLS AND CURING SAID COMPOSITIONS WITH HEXAMETHYLENETETRAMINE

Glyn Islwyn Harris and Frederick Coxon, Glamorgan, Wales, assignors to Midland Silicones Limited, Reading, England

No Drawing. Filed July 19, 1967, Ser. No. 654,357

Claims priority, application Great Britain, July 27, 1966, 33,831/66

Int. Cl. C07c 43/02; C08g 33/10

U.S. Cl. 260—52

18 Claims

Polymer compositions are prepared by reacting an aralkyl ether or an aralkyl halide with a molar excess of a phenolic compound, preferably in the presence of a Friedel-Crafts catalyst. The polymer compositions may be cross-linked by reaction with a hardening agent for novolac resins, for example, hexamethylene tetramine, and are useful in the preparation of moulding compounds, laminates and solid lubricants.

3,576,789

FINELY DIVIDED POLY(TRIALLYL ISOCYANURATE) AND POLY(TRIALLYL CYANURATE) BY EMULSION POLYMERIZATION

Rajinder Kochhar and Bert H. Clappitt, Overland Park, and Donald R. Jamieson, Merriam, Kans., assignors to Gulf Research & Development Company, Pittsburgh, Pa.

No Drawing. Filed Oct. 25, 1968, Ser. No. 770,794

Int. Cl. C08g 22/06, 53/18

U.S. Cl. 260—77.5

4 Claims

Finely divided poly(triallyl isocyanurate) and poly(triallyl cyanurate) having an average particle size of less than 5 microns are prepared by emulsion polymerization.

3,576,790

NEW CATALYST SYSTEMS FOR THE PRODUCTION OF POLYESTERS

Brian W. Pengilly, Yuzi Okuzumi, and Bernard J. Plaster, Akron, Ohio, assignors to The Goodyear Tire & Rubber Company, Akron, Ohio

No Drawing. Filed Aug. 20, 1969, Ser. No. 851,720

Int. Cl. C08g 17/015; C07c 67/02

U.S. Cl. 260—75

19 Claims

Highly polymeric linear polyesters are prepared by subjecting a bis ester of dicarboxylic acid to alcoholysis in the presence of a glycol and a catalytic amount of a compound having the general formula



wherein M is a metal selected from the group consisting of magnesium, calcium, zinc, cadmium, strontium, barium and manganese followed by condensation polymerization with the removal of glycol.

3,576,791

POLYSULFONES

Howard V. Holler, Oakland, and Edward A. Youngman, Modesto, Calif., assignors to Shell Oil Company, New York, N.Y.

No Drawing. Continuation-in-part of application Ser. No. 545,559, Apr. 27, 1966. This application July 10, 1969, Ser. No. 840,825

Int. Cl. C08f 27/24, 13/06

U.S. Cl. 260—79.3

5 Claims

Reaction products according to this invention are polysulfones of diolefins and SO₂ in which the molar ratio of diolefin-derived monomer units to —SO₂— is greater than 1:2:2, and their hydrogenation products. Polysulfones of this invention exhibit greater solubility in solvents such as phenols, compared to polysulfones containing hydrocarbon-derived and —SO₂— units in 1:1 ratio in a perfectly alternating structure.

3,576,792

DITHIOLETHIONESULFENAMIDES AS VULCANIZATION ACCELERATORS

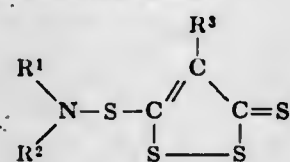
Joseph Patrick Brown, Bryn Castell, Geufron, Llangollen, Wales, assignor to Monsanto Chemicals Limited, London, England

No Drawing. Filed Sept. 25, 1968, Ser. No. 762,619
Claims priority, application Great Britain, Sept. 26, 1967, 43,770/67

Int. Cl. C08f 27/06

U.S. Cl. 260—79.5

New compounds of the formula



where R¹ represents a hydrogen atom or an aliphatic group, R² represents an aliphatic group, or where R¹ and R² taken together with the nitrogen atom represent a saturated ring, and R³ represents an aliphatic or aromatic group are described which are useful for accelerating the vulcanization of rubber.

3,576,793

POLYMERS OF ALKYLENE DIPHOSPHONIC ACIDS AND SALTS AND COPOLYMERS THEREOF

Robert L. Carroll, Richmond, Va., and Marvin M. Crutchfield, St. Louis, Mo., assignors to Monsanto Company, St. Louis, Mo.

No Drawing. Continuation-in-part of application Ser. No. 636,599, May 8, 1967, and a division of application Ser. No. 767,491, Oct. 14, 1968. This application Sept. 11, 1969, Ser. No. 872,800

Int. Cl. C08f 13/00, 21/02, 25/00

U.S. Cl. 260—80

Polymers of lower alkylene-1,1-diphosphonates, copolymers of lower alkylene-1,1-diphosphonates and polymerizable ethylenically unsaturated compounds, as well as synthetic polymers containing lower alkylene-1,1-diphosphonates, are described which exhibit many and various advantageous features including increased resistance to burning.

3,576,794

WAX FROM ETHYLENE AND PROCESS FOR PRODUCTION THEREOF

Toshiyuki Tani, Takaoka-shi, Tomio Ishiwata, Tokyo-to, and Tomoo Yamamoto, Takada-shi, Japan, assignors to Nippon Soda Kabushiki Kaisha, Tokyo-to, Japan

Filed Dec. 6, 1965, Ser. No. 511,757

Int. Cl. C08f 1/60

U.S. Cl. 260—94.9

A wax which is polymerized ethylene and chlorohydrocarbon. The wax is produced by heating ethylene and chlorohydrocarbon in a pressure vessel in the presence of a radical forming catalyst.

3,576,795

REACTION PRODUCTS OF NOVEL TETRAHYDRO OXAZONIUM COMPOUNDS AND GELATIN

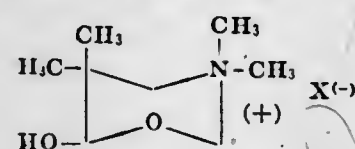
Lloyd D. Taylor, Everett, Mass., assignor to Polaroid Corporation, Cambridge, Mass.

Filed Dec. 1, 1967, Ser. No. 687,347

Int. Cl. C08h 7/04; C09h 7/00

U.S. Cl. 260—117

A novel compound of the formula



wherein X is an anion of an acid with an ionization constant of at least 10⁻², has been found to provide a gelatin hardening function when utilized therewith.

3,576,796

MIXED METALLIFEROUS MONOAZO COMPLEXES

Marcel Georges Jirou and Claude-Marie Henri Emile Brouard, Sotteville-les-Rouen, France, assignors to Ugine Kuhlmann, Paris, France

No Drawing. Filed Mar. 15, 1967, Ser. No. 623,225
Claims priority, application France, Mar. 15, 1966, 53,424

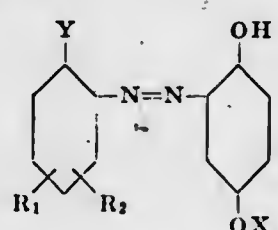
Int. Cl. C09b 45/16

U.S. Cl. 260—145

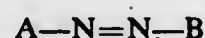
Mixed chromiferous complexes are provided of the type:



in which (I) represents the residue of a monoazo dyestuff of the general formula:



wherein X represents a methyl or ethyl group, Y represents a group capable of taking part in the formation of a metalliferous complex, and R₁ and R₂ each represent hydrogen or halogen atoms or alkyl, alkoxy or nitro groups, (II) represents the residue of a monoazo dyestuff of the general formula:



in which A represents the residue of a monosulphonated o-aminophenol or o-aminonaphthol possibly containing non-solubilising substituents and B represents the residue of a coupling compound.

3,576,797

BIOLOGICALLY ACTIVE DERIVATIVES OF 6-AMINOPENICILLANIC ACID AND THEIR PRODUCTION

Frank Peter Doyle, Betchworth, John Herbert Charles Naylor, Catford, London, and George Newbolt Rolinson, Betchworth, England, assignors to Beecham Group Limited, Brentford, England

No Drawing. Continuation of application Ser. No. 826,491, July 13, 1959, which is a division of application Ser. No. 750,075, July 22, 1958, now Patent No. 2,941,995, dated June 21, 1960. This application Dec. 12, 1968, Ser. No. 807,145
Claims priority, application Great Britain, Aug. 2, 1957, 26,607/57, Patent 870,395

Int. Cl. C07d 99/22; A61k 21/00

U.S. Cl. 260—239.1

This invention relates to N acylated derivatives of substances produced by penicillin-producing moulds.

3,576,798

1,2,3,4-TETRAHYDRO-5H-[1]BENZOPYRANO [3,4-d]PYRIDINES

Harry G. Pars, Lexington, and Felix E. Granchelli, Arlington, Mass., assignors to Arthur D. Little Inc., Cambridge, Mass.

No Drawing. Filed Sept. 27, 1965, Ser. No. 490,687
Int. Cl. C07d 7/32

U.S. Cl. 260—240

Novel 8-alkyl- (and 8-cycloalkyl-lower-alkyl-) 10-hydroxy - 5,5 - di-loweralkyl - 1,2,3,4 - tetrahydro - 5 - H-[1]-benzopyrano [3,4-d] pyridines and certain ether and ester derivatives thereof possess central nervous depressant activity and are useful as psychotropic agents.

3,576,799

NON-SILVER PHOTOGRAPHIC SYSTEMS

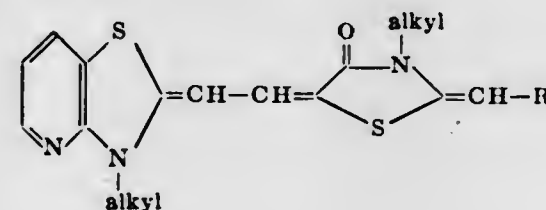
Eugene Wainer, Shaker Heights, Ohio, assignor to Horizons Incorporated, a Division of Horizons Research Incorporated

No Drawing. Continuation-in-part of application Ser. No. 485,535, Sept. 7, 1965. This application Dec. 23, 1969, Ser. No. 887,732

Int. Cl. C09b 23/10

U.S. Cl. 260—240.1

Tri-nuclear heterocyclic compounds which yield a black image in a non-silver, free radical photographic system represented by the general formula



wherein R represents a carbocyclic or heterocyclic nucleus of the type common in cyanine dye chemistry.

3,576,800

1-ACYL-3-INDOLYL ALIPHATIC ACID DERIVATIVES AND THEIR METHOD OF PREPARATION

Hisao Yamamoto, Nishinomiyashi, and Masaru Nakao, Osaka, Japan, assignors to Sumitomo Chemical Company, Ltd., Osaka, Japan

No Drawing. Filed May 2, 1967, Ser. No. 635,362
Claims priority, application Japan, May 12, 1966, 41/30,306; June 27, 1966, 41/42,039; June 30, 1966, 41/42,721, 41/42,722; July 8, 1966, 41/44,723, 41/44,724; Aug. 1, 1966, 41/50,691; Aug. 19, 1966, 41/54,675, 41/54,674; Dec. 15, 1966, 41/82,480; Dec. 16, 1966, 41/82,649, 41/82,650; Dec. 20, 1966, 41/83,748; Jan. 6, 1967, 42/1,351, 42/1,352; Jan. 7, 1967, 42/1,499; Jan. 16, 1967, 42/3,223, 42/3,224; Jan. 17, 1967, 42/3,530, 42/3,531

Int. Cl. C07d 27/56

U.S. Cl. 260—240

A 1-acyl-3-indolyl aliphatic acid derivative having remarkable anti-inflammatory, antipyretic and analgesic actions which is characterized in that said acyl substituent is aralkylcarbonyl or aralkenylcarbonyl whose carbon chain has up to 5 carbon atoms, and process for producing the compound.

3,576,801

PROCESS OF PRODUCING 6-STYRYL-5,6-DIHYDRO-α-PYRONE COMPOUNDS

Hans Brinkhoff, Munich, Germany, assignor to Spezialchemie Gesellschaft mit beschränkter Haftung und Co., Arzneimittelwerk, Munich, Germany

No Drawing. Filed Dec. 5, 1967, Ser. No. 690,729
Claims priority, application Germany, Dec. 20, 1966, S 107,503, S 107,504

Int. Cl. C07d 7/10

U.S. Cl. 260—240

6-styryl-5,6-dihydro-α-pyrone compounds such as kawaian and methysticin are produced by condensing γ-halogeno-β-alkoxy crotonic acid esters with cinnamic aldehyde or its acetal or alkoxy- or methylenedioxy-substituted cinnamic aldehyde or acetal in the presence of metallic zinc. When decomposing the resulting organo-zinc salt by a treatment with a dilute mineral acid, preferably 10% hydrochloric acid, the α-pyrone compounds are obtained in a surprisingly high, almost quantitative yield.

Preferably the starting γ-halogeno-β-alkoxy crotonic acid ester is obtained by brominating β-alkoxy crotonic

acid ester with a brominating imido compound such as N-bromo succinimide or 1,3-dibromo-5,5-dimethyl hydantoin in the absence of a solvent at a temperature exceeding 100° C., preferably at 105–115° C. The succinimide or dimethyl hydantoin formed thereby is completely removed from the γ-bromo-β-alkoxy crotonic acid ester by extraction of a solvent wherein the imido compounds are soluble but not the bromo compound. The bromo compound need not be dried and can directly be purified by vacuum distillation. The yield is almost quantitative. Water is the preferred solvent.

3,576,802

DISUBSTITUTED OXETANES AND PROCESS FOR THEIR MANUFACTURE

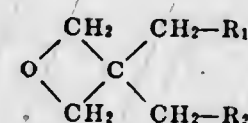
Walter Lüders, Neu-Isenburg, Günter Messwarb, Kelkheim, Taunus, and Herbert Maar and Hartmut Steppan, Wiesbaden, Germany, assignors to Kalle Aktiengesellschaft, Wiesbaden-Biebrich, Germany

No Drawing. Filed July 2, 1968, Ser. No. 741,864
Claims priority, application Germany, July 6, 1967, P 16 43 323.1

Int. Cl. C07d 3/00

U.S. Cl. 260—240

Polymerizable 3,3-disubstituted oxetanes of the formula



wherein at least one of R₁ and R₂ is an unsaturated group capable of dimerization under the influence of light. A method of making such compounds from precursors having one or two halomethyl groups in the 3-position.

3,576,803

3-AMINO-2-(AMINOMETHYL)-AR-NITROPROPIOPHENONES

Malcolm W. Moon, Kalamazoo, Mich., assignor to The Upjohn Company, Kalamazoo, Mich.

No Drawing. Filed July 5, 1967, Ser. No. 651,111
Int. Cl. C07d 87/40

U.S. Cl. 260—246

Certain new 3-amino-2-(aminomethyl)-Ar-nitropropionophenones are active against bacteria and fungi. The amino groups are broadly selected from disubstituted amino and saturated heterocyclic amino. There may be a second nitro group on the benzene ring as well as alkyl, alkoxy, or halogen. The bean root rot fungus *Fusarium solani* f. *phaseoli*, and the tomato leaf spot bacterium *Xanthomonas vesicatoria* have been controlled.

3,576,804

FLUOROTRIAZINE COMPOUNDS

Erich Klauke, Odenthal-Hahnenberg, Hans-Samuel Bien, Burscheid, and Alfons Dorlars, Leverkusen, Germany, assignors to Farbenfabriken Bayer Aktiengesellschaft, Leverkusen, Germany

No Drawing. Filed May 2, 1968, Ser. No. 726,247
Claims priority, application Germany, May 11, 1967, F 52,384; Jan. 20, 1968, F 54,592

Int. Cl. C07d 55/48

U.S. Cl. 260—248

In the process for the production of difluoro-s-triazine compounds the improvement which comprises reacting a 2,4-dichloro-s-triazine compound containing in the 6-position a hydrocarbon or substituted hydrocarbon radical which is bound directly or via a hetero atom, with anhydrous hydrofluoric acid at a temperature of from about -20° C. to about +80° C. until the corresponding 2,4-difluoro compound is formed.

3,576,805

N²,N⁴,N⁶-TRISUBSTITUTED MELAMINES
Margot Louise Cantrell, New City, Martin Leon Sassiver, Monsey, and Robert Gordon Shepherd, South Nyack, N.Y., assignors to American Cyanamid Company, Stamford, Conn.

No Drawing. Filed May 22, 1969, Ser. No. 827,032

Int. Cl. C07d 55/22

U.S. Cl. 260—249.6 9 Claims
This disclosure describes compounds of the class of 2-polymethyleneimino-4,6-bis(tertiary-alkylamino)-s-triazines and 2-(tertiary-alkylamino)-4,6-bis(polymethyleneimino)-s-triazines useful as anti-mycobacterial agents.

3,576,806

STABILIZATION AND PURIFICATION OF AZIRIDINES DERIVED FROM ACTIVE HALOGEN COMPOUNDS

Joseph Adrian Hoffman, Bound Brook, N.J., assignor to American Cyanamid Company, Stamford, Conn.

No Drawing. Filed Aug. 8, 1969, Ser. No. 848,741

Int. Cl. C07d 55/22

U.S. Cl. 260—249.6 10 Claims
Process for improving the storage stability of 2,4,6-tris(aziridinyl)-s-triazines which comprises reacting the triazine product with a halogen scavenger to reduce the concentration of halogen containing impurities, now identified as the cause of instability in such triazines.

3,576,807

S-(PHTHALAZIN-1-YL)DITHIOCARBAMATES
John J. D'Amico, Dunbar, W. Va., assignor to Monsanto Company, St. Louis, Mo.

No Drawing. Application Oct. 11, 1967, Ser. No. 705,572, now Patent No. 3,454,572, which is a division of application Ser. No. 513,558, Dec. 13, 1965, now Patent No. 3,379,700. Divided and this application Oct. 1, 1968, Ser. No. 766,025

Int. Cl. C07d 51/06

U.S. Cl. 260—250 5 Claims
S-(phthalazin-1-yl)dithiocarbamates are described which are useful for accelerating vulcanization of rubber.

3,576,808

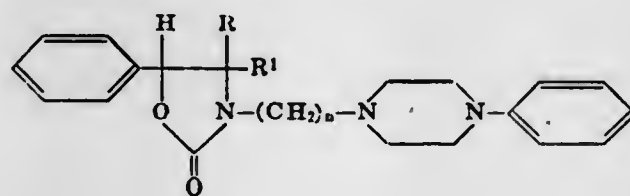
N-4-PHENYL-1-PIPERAZINYLALKYL-5-PHENYL-OXAZOLIDINONES

Robert Norman Schut, Edwardsburg, Mich., assignor to Miles Laboratories, Inc., Elkhart, Ind.

No Drawing. Filed Sept. 15, 1967, Ser. No. 668,167

Int. Cl. C07d 51/70

U.S. Cl. 260—268 5 Claims
N-4-phenyl-1-piperazinylalkyl-5-phenyl-oxazolidinones of the structural formula:



in which R is H or methyl, R¹ is H or methyl, or RR¹ is oxygen; and n is an integer from 2 to 5; and pharmacologically acceptable salts thereof. These compounds are useful as antihypertensive agents. These compounds are prepared by: (a) condensation of a styrene oxide with 4-aryl-1-piperazinylalkylamine to form an intermediate aminoalcohol, or (b) reacting a β-hydroxyphenethylamine with a 4-aryl-1-piperazinylalkyl halide to form the intermediate aminoalcohol, or (c) reacting an alkyl man-

delate with 4-aryl-1-(ω-aminoalkyl)piperazine to form an intermediate mandelamide; and treating the mandelamide with phosgene or ethyl chloroformate to effect ring closure.

3,576,809

2-SUBSTITUTED DERIVATIVES OF 6-METHOXYQUINOLINE

Dale Adrian Stauffer, Elkhart, Ind., assignor to Miles Laboratories, Inc., Elkhart, Ind.

No Drawing. Filed May 6, 1968, Ser. No. 727,069

Int. Cl. C07d 51/70

U.S. Cl. 260—268 3 Claims
2 piperazinyl-6-methoxyquinolines are prepared by reacting a 2-halo-6-methoxyquinoline with a suitable amine, piperazine or piperidine.

3,576,810

1-SUBSTITUTED-3-(4-ARYLOXY)PIPERIDINES
Robert L. Duncan, Jr., and Grover Cleveland Helsley, Richmond, Va., assignors to A. H. Robins Company, Incorporated, Richmond, Va.

No Drawing. Filed June 20, 1968, Ser. No. 738,420

Int. Cl. C07d 29/20

U.S. Cl. 260—294 17 Claims
1-substituted-3-aryloxy piperidines and 1-substituted-4-aryloxy piperidines are described which have been shown to be useful as tranquilizing agents. The compounds are prepared from nipecotic acid and isonipecotic acid using the Friedel-Crafts ketone synthesis.

3,576,811

1-ALKYL-1-(β-PIPERIDINO-ETHYL)-1,2,3,4-TETRAHYDRONAPHTHALEN-2-ONES

Raffaello Fusco, Milan, and Franco Tenconi, Monza, Italy, assignors to Warner-Lambert Pharmaceutical Company, Morris Plains, N.J.

No Drawing. Filed May 6, 1968, Ser. No. 727,060

Int. Cl. C07d 29/20

U.S. Cl. 260—294.7 13 Claims
There have been prepared new 1-alkyl-1-(β-piperidino-ethyl)-1,2,3,4-tetrahydro-naphthalen-2-ones and pharmaceutically acceptable acid addition salts thereof having antitussive activity. They are obtained by reacting the corresponding 1-alkyl-1,2,3,4-tetrahydro-naphthalen-2-ones with a β-haloethyl-piperidine in the presence of an alkaline condensing agent. The new compounds may be formulated as pharmaceutical compositions with any of the conventional pharmaceutically acceptable carriers for oral, parenteral or rectal use.

3,576,812

1,5-METHANO-3-BENZAZOCINE DERIVATIVES
Karel Wiesner and Jarvis G. McCluskey, Fredericton, New Brunswick, Canada, assignors to American Home Products Corporation, New York, N.Y.

No Drawing. Filed July 2, 1968, Ser. No. 741,894

Int. Cl. C07d 39/00

U.S. Cl. 260—294.7 11 Claims
There are disclosed herein 1,5-methano-1-methyl-3-benzazocines optionally substituted in position 3 with methyl, allyl, 3,3-dimethylallyl, cyclopropylmethyl, anilinoethyl, 3-anilinopropyl, phenethyl, 3-phenylpropyl, 2-hydroxyphenethyl, 3-hydroxy-3-phenylpropyl, phenacyl, 3-oxo-3-phenylpropyl, cinnamyl, p-aminophenethyl, or 3-(p-aminophenyl)propyl groups; in position 9 with a hydroxy or a methoxy group; and in position 11 with a methyl, a hydroxy, or an amino group. The key inter-

mediates for the preparation of the above compounds, 1,2,5,6-tetrahydro-1-methyl-1,5-methano-3-benzazocine-4,11(3H)-diones optionally substituted in position 9 with a hydroxy or a methoxy group, the process for preparing the above intermediates, and the processes for preparing the corresponding 1,5-methano-1-methyl-3-benzazocines and their derivatives listed above from the above intermediates are also disclosed. The 1,5-methano-1-methyl-3-benzazocines disclosed above have analgesic, anti-inflammatory, and cholesterol biosynthesis inhibiting properties, and methods for their pharmacological use are also given.

3,576,813

BIS(PYRIDINIUM SALTS) USEFUL AS GELATIN HARDENERS

Donald M. Burness and Burton D. Wilson, Rochester, N.Y., assignors to Eastman Kodak Company, Rochester, N.Y.

No Drawing. Original application May 22, 1964, Ser. No. 369,629, now Patent No. 3,396,127, dated Aug. 6, 1968, Divided and this application Feb. 2, 1968, Ser. No. 702,508

Int. Cl. C07d 31/34

U.S. Cl. 260—295 6 Claims
Certain bis(pyridinium salts) are useful for hardening gelatin, such as photographic gelatin. Adipolybis(N-oxymethylpyridinium perchlorate), adipolybis(N-oxymethyl-4-picolinium perchlorate), adipolybis(N-α-oxo-ethylpyridinium perchlorate) and sebacoylbis(N-oxymethylpyridinium perchlorate) are illustrative of the novel hardener compounds.

3,576,814

N-ARYL PYRID-2-ONES
Michael C. Seldel, Levittown, Kenneth L. Viste, Warminster, and Roy Y. Yih, Doylestown, Pa., assignors to Rohm and Haas Company, Philadelphia, Pa.

No Drawing. Continuation of application Ser. No. 779,198, Nov. 26, 1968, which is a continuation-in-part of application Ser. No. 698,106, Jan. 16, 1968.

This application Jan. 30, 1970, Ser. No. 7,256

Int. Cl. C07d 31/36

U.S. Cl. 260—295.5 5 Claims
Novel compounds belonging to the class of N-arylpyrid-2-one-4,6-dialkyl (and 4,5,6-trisubstituted)-3-carboxylic acids and their amides, esters and physiologically acceptable salts. These compounds possess biological activity and in particular are plant growth regulators.

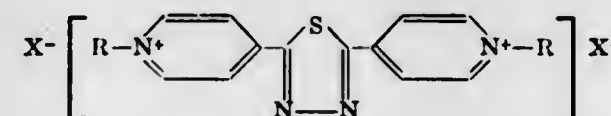
3,576,815

BISPYRIDINIUM COMPOUNDS
William Carter Doyle, Shawnee Mission, Kans., assignor to Gulf Research & Development Company, Pittsburgh, Pa.

No Drawing. Original application Aug. 24, 1966, Ser. No. 574,541, now Patent No. 3,458,305. Divided and this application Sept. 6, 1968, Ser. No. 778,892

Int. Cl. C07d 31/22

U.S. Cl. 260—296 7 Claims
Novel 4,4'-bispyridinium compounds which contain divalent conjugated structures between the pyridine rings have unusual characteristics which make them useful as selective herbicides and as indicator reagents in colorimetric analysis. Particularly interesting are the 4,4'-[2,5-(1,3,4-thiadiazol)-ylene] bispyridinium halides which are represented by the following structural formula:



When R is a hydrocarbon substituent group with a molecular weight less than about 150, these compositions exhibit both good activity and selectivity, and are useful in post-emergent control of broad-leaf weeds in crops such as corn, wheat, oats, and sorghum grains.

3,576,816

PROCESS FOR MAKING 3-(2-BENZOTHAZOLYL)-2-BENZOTHAZOLINEONE

Sidney T. Webster, Nitro, and John J. D'Amico, Dunbar, W. Va., assignors to Monsanto Company, St. Louis, Mo.

No Drawing. Original application Oct. 16, 1964, Ser. No. 404,516, now Patent No. 3,400,133, dated Sept. 3, 1968, Divided and this application Jan. 10, 1968, Ser. No. 738,715

Int. Cl. C07d 91/44

U.S. Cl. 260—304 2 Claims
Preparation of 3-(2-benzothiazolyl)-2-benzothiazolineone by reacting 2-chlorobenzothiazole with an alkali metal salt of 2-hydroxybenzothiazole.

3,576,817

PRODUCTION OF PEROXY COMPOUNDS
Brian Walton Harris, Horley, Surrey, England, assignor to BP Chemicals (U.K.) Limited, London, England

No Drawing. Filed May 8, 1968, Ser. No. 727,716
Claims priority, application Great Britain, May 25, 1967, 24,271/67

Int. Cl. C07d 85/26

U.S. Cl. 260—307 14 Claims
In the production of 1,1'-peroxydicyclohexylamine from dihydrodicyclohexyl peroxide, or substances giving dihydrodicyclohexyl peroxide under the reaction conditions, with ammonia, improved results are obtained by carrying out the reaction in the presence of ammonium chloride.

3,576,818

2-CYANO BENZIMIDAZOLES AND A PROCESS FOR THEIR PREPARATION

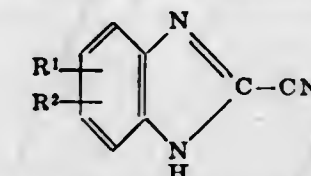
Eva Lea Samuel, 27 Ludwell Crescent, Bentleigh, Victoria, Australia, and George Holan, 86 Were St., Brighton, Victoria, Australia

No Drawing. Filed Sept. 18, 1967, Ser. No. 668,637
Claims priority, application Australia, Sept. 19, 1966, 11,210/66

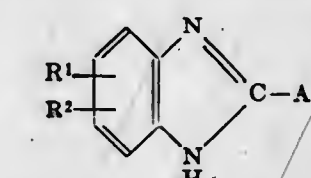
Int. Cl. C07d 49/38

U.S. Cl. 260—309.2 3 Claims

2-cyanobenzimidazoles of the formula:



wherein R¹ and R² are independently selected from the group consisting of hydrogen, chlorine, bromine, nitro, alkyl of not more than four carbon atoms, and alkoxy of not more than four carbon atoms, exhibit antiseptic and bactericidal activity. The 2-cyanobenzimidazoles are prepared by the reaction of a benzimidazole of the formula



wherein R¹ and R² are as defined above and A is selected from trichloromethyl, monochlorodifluoromethyl and monofluorodichloromethyl, with ammonia.

3,576,819

ESTERS OF α -(1-SUBSTITUTED-3-PYRROLIDINYL)- α -PHENYL ACETIC ACID

Carl Dalton Lunsford, Richmond, and Albert Duncan Cale, Jr., Mechanicsville, Va., assignors to A. H. Robins Company, Incorporated, Richmond, Va.
No Drawing. Filed Feb. 26, 1968, Ser. No. 707,945
Int. Cl. C07d 27/04

U.S. Cl. 260—326.3

13 Claims

Lower alkyl esters of α -(1-substituted-3-pyrrolidinyl)- α -phenyl-acetic acid are disclosed which possess analgetic activity.

3,576,820

METHOD FOR MAKING SMALL-RING CYCLIC SULFIDES

Scott Searles, Jr., 740 Elling Drive, Manhattan, Kans. 66502, and Eugene F. Lutz, Concord, Calif.; said Lutz assignor to said Searles

No Drawing. Continuation-in-part of application Ser. No. 820,575, June 16, 1959. This application May 31, 1963, Ser. No. 284,393

Int. Cl. C07d 59/00

U.S. Cl. 260—327

8 Claims

Disclosed is the preparation of small-ring cyclic sulfides by heating a thiocyanate salt with the cyclic carbonate of a diol in which the hydroxyl groups are attached to carbon atoms each having at least one attached hydrogen atom, said carbon atoms being separated from each other by no more than one intervening, hydroxyl-free carbon atom.

3,576,821

1,2-DITHIOLE-3-THIONE

Joseph P. Brown, Llangollen, Wales, assignor to Monsanto Chemicals Limited, London, England
No Drawing. Continuation-in-part of application Ser. No. 451,607, Apr. 28, 1965. This application May 10, 1968, Ser. No. 728,310

Claims priority, application Great Britain, May 5, 1964, 18,541/64

Int. Cl. C07d 29/34; 71/00

U.S. Cl. 260—327

17 Claims

5-mercapto-1,2-dithiole-3-thiones are prepared by reacting sulfur with an olefin in the presence of an amine or an N-alkylated carboxylic amide. Alternatively, a dithiole-3-thione is reacted with (a) sulfur or hydrogen sulfide in the presence of an amine or an N-alkylated carboxylic amide or (b) alcoholic reaction medium containing sulfide or polysulfide ion. The free mercaptans, salts, and disulfides are described. The compounds are useful to accelerate vulcanization of rubber and include members useful as pigments and intermediates.

3,576,822

THIOPHENE THIOSEMICARBAZONES

Ronnie G. Edie and William A. White, Indianapolis, Ind., assignors to Eli Lilly and Company, Indianapolis, Ind.
No Drawing. Filed Dec. 18, 1967, Ser. No. 691,162

Int. Cl. A61k 27/00; C07d 63/12

U.S. Cl. 260—329

4 Claims

The present invention relates to novel thiophene thiosemicarbazones and derivatives thereof.

3,576,823

SUBSTITUTED DERIVATIVE OF 3 α ,12 β -DIHYDRO-8H - DIBENZO[3,4:6,7]CYCLOHEPTA[1,2-d] - 1,3-DIOXOLE

Marcia E. Christy, Coleman, Pa., assignor to Merck & Co., Inc., Rahway, N.J.

No Drawing. Original application July 22, 1963, Ser. No. 296,463, now Patent No. 3,390,179, dated July 25, 1968. Divided and this application Jan. 29, 1968, Ser. No. 723,964

Int. Cl. C07d 13/08

U.S. Cl. 260—340.5

4 Claims

The present invention relates to derivatives of dibenzocycloheptenes useful because of their antidepressant

activity. The invention includes these compounds as well as processes and intermediates useful in their preparation. These compounds are prepared from the known 3 α ,12 β - dihydro-2,2-dimethyl-5H-dibenzo[3,4:6,7]cyclohepta[1,2-d] - 1,3-dioxol-8-one and derivatives thereof which contain additional substituents substituted in any position of the benzenoid ring. This starting material, alternatively known as the acetone of 10,11-dihydroxy-10,11-dihydro-5H-dibenzo-[a,d]cyclohepten-5-one is converted by treatment with a 3 - dialkylaminopropylidene magnesium halide to produce the corresponding 5-hydroxy - 5 - (3-dialkylaminopropylidene) compound which is then dehydrated under acidic conditions to produce the acetone of 10,11-dihydroxy-10,11-dihydro-5-(3-dialkylaminopropylidene) - 5H-dibenzo[a,d]cycloheptene. This product is hydrolyzed to produce the corresponding 10,11 - dihydroxy - 5-(3-alkylaminopropylidene)-5H-dibenzo[a,d]cycloheptene.

3,576,824

ALPHA-SUBSTITUTED BETA-PROIOLACTONE PURIFICATION

Arie Klootwijk, deceased, late of Purmerend, Netherlands, by Johanna Maria Klootwijk, personal representative, Purmerend, Netherlands, assignor to Shell Oil Company, New York, N.Y.

No Drawing. Continuation-in-part of abandoned application Ser. No. 541,099, Apr. 8, 1966. This application Nov. 18, 1968, Ser. No. 779,301

Claims priority, application Netherlands, Sept. 14, 1965, 6511922

Int. Cl. C07d 3/00

U.S. Cl. 260—343.9

8 Claims

Purification of α -substituted β -proiolactones contaminated with the normal impurities of α -substituted β -proiolactone production is effected by contacting the lactone with an organic isocyanate in the liquid phase at a temperature from about 100° C. to about 160° C., and recovering lactone of enhanced purity from the resulting mixture.

3,576,825

OXIDATION OF TETRAALKYL BENZENES TO PYROMELLITIC DIANHYDRIDE USING A NON-FUSED NIOBIUM VANADATE CATALYST

Richard I. Bergman, Princeton, N.J., assignor to Princeton Chemical Research, Inc., Princeton, N.J.

No Drawing. Continuation of application Ser. No. 468,618, June 30, 1965, and a continuation-in-part of application Ser. No. 385,801, July 28, 1964.

This application Mar. 19, 1969, Ser. No. 808,700

Int. Cl. C07c 63/02

U.S. Cl. 260—346.4

12 Claims

Improvements in the oxidation of tetraalkyl benzenes to pyromellitic dianhydride in the vapor phase with oxygen oxidant using as the catalyst for the reaction a calcined material made by drying, at up to about 550° C., a niobium vanadate catalyst formed by drying an oxalic acid solution of vanadium pentoxide and niobium vanadate. The preferred tetraalkyl benzene is durene.

3,576,826

PROCESS FOR PREPARING ETHER PEROXY COMPOUNDS FROM α -SUBSTITUTED VINYL ETHER

Richard Anthony Bafford, Tonawanda, and Leonard Ernest Korczykowski and Orville Leonard Magelli, Buffalo, N.Y., assignors to Pennwalt Corporation

No Drawing. Filed Oct. 10, 1966, Ser. No. 585,295

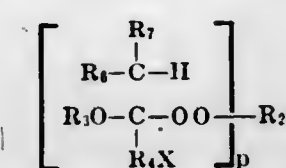
Int. Cl. C07c 73/00; C07d 51/16, 71/04

U.S. Cl. 260—347.8

6 Claims

A process for making ether peroxides or ether hydroperoxides by reacting, in the absence of a catalyst, below about 60° C., α -substituted vinyl ether with organic

peroxide or hydrogen peroxide to obtain the corresponding peroxide



Illustrative products are: 2-ethoxy-2-t-butylperoxy butyric acid; bis-2,2'-(2-isoamylxypropyl) peroxide; 2-isoamyl oxy-2-propylperoxy, isopropylcarbonate; 2-methyl-2-perbenzoxo tetrahydropyran; and 2-methyl-2-tetrahydrofurylperoxy N-methyl-carbamate.

3,576,827

PROCESS FOR PREPARING GLYCIDYL ESTERS OF POLYCARBOXYLIC ACID ANHYDRIDES

Clifford F. Dukes, Jeffersonton, and James H. Melloan, Louisville, Ky., assignors to Celanese Coatings Company, New York, N.Y.

No Drawing. Filed May 12, 1969, Ser. No. 823,952

Int. Cl. C07d 1/20; C07c 69/76

U.S. Cl. 260—348.6

22 Claims

A process for preparing glycidyl esters of polycarboxylic acid anhydrides by catalytically reacting epichlorohydrin and a polycarboxylic acid anhydride in the presence of water or by reacting water with the polycarboxylic acid anhydride in the presence of epichlorohydrin and then catalyzing the epichlorohydrin, hydrolyzed polycarboxylic acid anhydride reaction wherein the above reactions are carried out at a temperature no higher than about 200° F. to form chlorohydrin esters followed by dehydrohalogenation with alkali metal hydroxide at a temperature of about 70° F. to 150° F.

3,576,828

 $\Delta^4,9,11$ -TRIENES OF THE 19-NOR-ANDROSTENE SERIES AND PROCESS FOR THEIR MANUFACTURE

Georg Anner, Basel, and Peter Wieland, Oberwil, Basel-Land, Switzerland, assignors to Ciba Corporation, New York, N.Y.

No Drawing. Filed July 22, 1966, Ser. No. 567,377

Claims priority, application Switzerland, July 30, 1965, 10,790/65; Sept. 10, 1965, 12,624/65

Int. Cl. C07c 169/20

U.S. Cl. 260—397.3

21 Claims

Process for the manufacture of $\Delta^4,9,11$ -trienes of the 19-nor-androstane series, in which 17-oxygenated 3-oxo- $\Delta^{5(10)}$ -19-nor-androstadienes are treated with one mol equivalent of a peracid, the monoepoxides so obtained or mixtures thereof are treated with a Lewis acid, if desired, after treatment with an adsorbent containing silica or alumina. If desired, functionally modified hydroxyl groups or oxo groups that are present are converted into free hydroxyl or oxo groups or free hydroxyl groups are functionally modified, or dehydrogenated to an oxo group and/or a 17-oxo group is reduced, if desired, with simultaneous introduction of a hydrocarbon radical in 17 α -position. The compounds of the invention display exceptionally high androgenic and anabolic or gestagenic activity.

3,576,829

NOVEL 13 α -LOWER ALKYLGONA-1,3,5(10)-TRIENES

Reinhardt P. Stein, Conshohocken, and Herchel Smith, Wayne, Pa., assignors to American Home Products Corporation, New York, N.Y.

No Drawing. Continuation-in-part of application Ser. No. 721,592, Apr. 16, 1968. This application July 11, 1969, Ser. No. 841,107

Int. Cl. C07c 169/08

U.S. Cl. 260—397.4

3 Claims

The disclosure involves the production of novel 13 α -lower alkylgona-1,3,5(10)-trien-17-ones by irradiation

technique producing compounds that are pharmacologically active.

3,576,830

AMIDES CONTAINING SULFUR

Toshitsugu Fukumaru, Kyoto, Noritaka Hamma, Nishinomiya-shi, Hiroshi Nakatani, Toyonaka-shi, Hideaki Fukushima, Takatsuki-shi, and Katsuyuki Toki, Nishinomiya-shi, Japan, assignors to Sumitomo Chemical Company, Ltd., Osaka, Japan
No Drawing. Filed Aug. 7, 1967, Ser. No. 658,634
Claims priority, application Japan, Aug. 12, 1966, 41/53,170

Int. Cl. C08h 9/02, 3/00

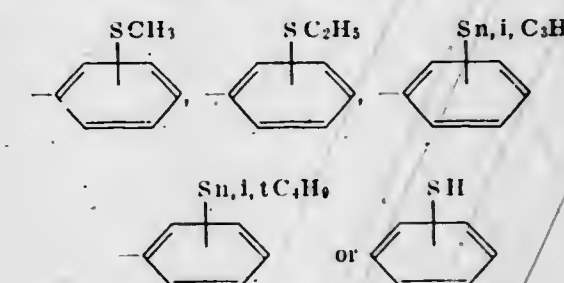
U.S. Cl. 260—402.5

2 Claims

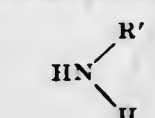
New compound having cholesterol lowering activity. The compound has the formula,



wherein R is C₁₃-C₂₅ branched or straight saturated or unsaturated aliphatic group having OH or not, and R' is



The compound is prepared, for example, by reacting a fatty acid RCOOH with an amine



3,576,831

ACID HYDROLYZED PHOSPHATIDES

Paul F. Davis, Addison, Ill., assignor to The Central Soya Company, Inc., Chicago, Ill.

No Drawing. Filed Mar. 6, 1967, Ser. No. 620,644

Int. Cl. A23j 7/02

U.S. Cl. 260—403

11 Claims

The controlled partial acid hydrolysis of soybean phosphatides to give modified products characterized by improved oil-in-water emulsification and improved wetting and stabilizing properties for the dispersion of fat-containing powders (both edible and industrial) in aqueous media.

3,576,832

PREPARATION OF ORGANOALUMINUM COMPOUNDS

Warren E. Becker and Paul Kobetz, Baton Rouge, La., assignors to Ethyl Corporation, New York, N.Y.

No Drawing. Filed Apr. 24, 1968, Ser. No. 723,911

Int. Cl. C07f 5/06

U.S. Cl. 260—448

10 Claims

Improvements in processes for producing organoaluminum compounds are described. These improvements involve the use of particular aluminum alloys as a source of aluminum in the processes. In particular, the aluminum alloys contain about 50-98 percent by weight of aluminum and at least three of the elements copper, iron, lead,

manganese, nickel, silicon and tin, the total quantity of said elements being about 0.75 to 20 percent by weight, the quantity of silicon present being 0 to 10 percent by weight.

3,576,833

m-HALOPHENOXY SILANE

William C. Hammann, Creve Coeur, and Charles F. Hobbs, Des Peres, Mo., assignors to Monsanto Company, St. Louis, Mo.

No Drawing. Filed May 22, 1968, Ser. No. 731,321
Int. Cl. C07f 7/06, 7/18

U.S. Cl. 260—448.8

1 Claim

New compounds of the class representative of which are m-halophenoxy alkyl silanes and m-halophenoxy silanes which are useful as functional fluids, more particularly for use as hydraulic fluids.

3,576,834

SUBSTITUTED O-CARBAMYLHYDROXAMATES

James B. Buchanan, Wilmington, Del., assignor to E. I. du Pont de Nemours and Company, Wilmington, Del.

No Drawing. Continuation-in-part of applications Ser. No. 361,277, Apr. 20, 1964, and Ser. No. 602,134, Dec. 16, 1966. This application Aug. 31, 1967, Ser. No. 670,494

Int. Cl. C07c 131/00

U.S. Cl. 260—453

11 Claims

Substituted O-carbamylhydroxamates such as methyl O-(methylcarbamyl)thiolacetohydroxamate useful as pesticides.

3,576,835

PREPARATION OF AROMATIC ISOCYANATES

Eric Smith, Madison, and Wilhelm Schnabel, Branford, Conn., assignors to Olin Corporation

No Drawing. Filed Dec. 18, 1967, Ser. No. 691,211
Int. Cl. B01j 11/12; C07c 119/04

U.S. Cl. 260—453

14 Claims

The process for preparing an organic isocyanate by reacting an organic nitro compound with carbon monoxide in the presence of a catalyst system comprised of a mixture or complex of a nitrogen-containing heteroaromatic compound and a halide of a noble metal. The heteroaromatic nitrogen-containing compound is one containing between five and six members in the ring, containing no element other than nitrogen and carbon in the ring, containing no more than two nitrogen atoms in the ring, and having at least two double bonds in the ring. Pyridine and isoquinoline are the preferred heteroaromatic compounds. The noble metal halide is preferably a halide of palladium, rhodium, iridium, platinum, or mixtures thereof. The catalyst system may also include a third component such as molybdenum trioxide or another metal oxide.

3,576,836

PREPARATION OF AROMATIC ISOCYANATES

William W. Prichard, Hockessin, Del., assignor to E. I. du Pont de Nemours and Company, Wilmington, Del.

No Drawing. Continuation-in-part of application Ser. No. 649,826, June 29, 1967. This application May 29, 1968, Ser. No. 732,884

Int. Cl. C07c 119/04

U.S. Cl. 260—453

11 Claims

A process for preparing aromatic isocyanates by carbonylation, at elevated temperatures and pressures, of aromatic mono- or dinitro compounds in the presence of a palladium halide and an organic cyano compound. The isocyanates and diisocyanates produced are generally useful as intermediates, especially for herbicides and polyurethanes, respectively.

3,576,837
PROCESS FOR PREPARATION OF BIS(TRIFLUOROMETHYL) TRIOXIDE AND FLUOROFORMYL TRIFLUOROMETHYL PEROXIDE

Lowell Ray Anderson, Parsippany, and William B. Fox, Morristown, N.J., assignors to Allied Chemical Corporation, New York, N.Y.

No Drawing. Filed Aug. 22, 1968, Ser. No. 754,725
Int. Cl. C07c 73/00, 73/10

U.S. Cl. 260—453

8 Claims

Bis(trifluoromethyl) trioxide and fluoroformyl trifluoromethyl peroxide may be prepared by reacting carbonyl fluoride and difluoromethylene bis(oxyfluoride) in the presence of CsF or RbF. With reaction times below about six hours fluoroformyl trifluoromethyl peroxide is recovered to the exclusion of any appreciable quantity of bis(trifluoromethyl) trioxides. With reaction times above about 18 hours, bis(trifluoromethyl) trioxide is recovered to the exclusion of any appreciable quantity of fluoroformyl trifluoromethyl peroxide.

3,576,838

METHOD OF PURIFYING HALOFORMATES

John L. Urness, North Muskegon, and Larry L. Filius, Muskegon, Mich., assignors to CPC International Inc.

No Drawing. Filed Feb. 26, 1969, Ser. No. 802,664

Int. Cl. C07c 69/64

U.S. Cl. 260—463

13 Claims

Covers a method of purifying haloformate. Particularly covers a method of preventing decomposition of haloformates due to presence of iron contaminants by contacting the haloformate with an aqueous alkali metal halide solution whereby the iron content of the organic haloformate phase is substantially reduced. The resultant aqueous phase is then separated from the organic phase. In an alternate procedure an acidic haloformate such as an alkyl haloformate is treated with an alkali metal base such as an aqueous sodium hydroxide solution whereby the haloformate is both neutralized and an alkali metal halide generated which effects substantial reduction of the iron content in the organic haloformate phase.

3,576,839

NOVEL ORGANIC ACID DERIVATIVES

Wilfried Draber, Maidstone, Kent, England, assignor to Shell Oil Company, New York, N.Y.

No Drawing. Filed Mar. 3, 1967, Ser. No. 620,275
Claims priority, application Great Britain, Mar. 4, 1966, 9,575/66

Int. Cl. C07c 61/36, 69/74, 61/32

U.S. Cl. 260—468

4 Claims

Plant growth regulants composed of six-membered carbocyclic substituted 1,3-butadienes such as 1-hydroxy-β-2,6,6-tetramethyl-4-oxo-2-cyclohexene-1-penta-2,4-dienoic acid methyl ester.

3,576,840

CERTAIN 2,2-DINITRO-2-FLUOROETHYL CARBAMATES

Milton B. Frankel, Tarzana, Calif., assignor to North American Rockwell Corporation, El Segundo, Calif.

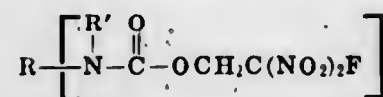
No Drawing. Continuation-in-part of application Ser. No. 616,428, Feb. 10, 1967. This application Sept. 23, 1968, Ser. No. 761,881

Int. Cl. C07c 79/46, 125/04, 125/06

U.S. Cl. 260—471

6 Claims

Compounds of the formula



are provided wherein R is alkyl, alkylene, dinitrofluoroalkyl, phenyl, nitrophenyl, phenylene or nitrophenylene,

R' is hydrogen or nitro and n is 1 or 2. Compounds of the formula $M(OCH_2C(NO_2)_2F)_x$ are also provided wherein M is S, B, P, Si, S→O or P→O and X is the free valence of M. These compounds are useful as explosives.

3,576,841

PREPARATION OF BIS-HYDROXYALKYL PHTHALATE ESTERS USING STERICALLY HINDERED AMINE CATALYSTS

Donald R. Larkin, P.O. Box 2768,

Corpus Christi, Tex. 78403

No Drawing. Continuation of application Ser. No. 576,555, Sept. 1, 1966. This application Jan. 19, 1970, Ser. No. 4,441

Int. Cl. C07c 69/80, 69/82

U.S. Cl. 260—475

9 Claims

Process for the production of hydroxyalkyl esters of benzene dicarboxylic acids by reacting alkylene oxides with the acids in the presence of sterically hindered amine catalysts such as alkyl substituted quinolines, pyridines, and piperidines.

3,576,842

METHOD OF PURIFYING DIMETHYL-TEREPHTHALATE

Tuneo Kimura, Yasuo Tanabe, Takatoshi Ogawa, and Jun Toriya, Kitakyushu-shi, Japan, assignors to Mitsubishi Chemical Industries Limited

No Drawing. Continuation-in-part of application Ser. No. 658,059, Aug. 3, 1967. This application Aug. 6, 1969, Ser. No. 848,115

Claims priority, application Japan, Aug. 26, 1966, 41/55,813

Int. Cl. C07c 69/82

U.S. Cl. 260—475

17 Claims

A process for the purification of crude dimethyl terephthalate derived from p-xylene. The crude dimethyl terephthalate is contacted with molecular oxygen in the presence of a cobalt-comprising material, a bromine-comprising material, and if desired, a manganese-comprising material. Both the cobalt-comprising material and the bromine-comprising material are soluble in the crude dimethyl terephthalate.

3,576,843

HALOGENATED 2-ACYLOXY-DIPHENYLETHERS
Ernst Model, Basel, and Jakob Bindler, Riehen, Switzerland, assignors to Celgy Chemical Corporation, Ardsley, N.Y.

No Drawing. Continuation-in-part of application Ser. No. 570,742, Aug. 8, 1966, which is a continuation-in-part of abandoned application Ser. No. 345,080, Feb. 17, 1964. This application Aug. 16, 1967, Ser. No. 660,926
Claims priority, application Switzerland, Feb. 14, 1964, 1,757

Int. Cl. C07c 69/34, 69/50

U.S. Cl. 260—479

5 Claims

Novel diesters of organic dicarboxylic acids and certain halogenated hydroxy-diphenylethers wherein the acyl radical is linked to the benzene nucleus of the diphenylether in 2-position to the ether bridge, which novel esters inhibit microbial growth and are suitable for disinfection and the like purposes, and especially those of the aforesaid diesters wherein at least one diphenyl ether moiety is substituted at least in 4-position and preferably in 4- and 4'-position by halogen, which diesters are particularly useful for the protection of cellulosic materials against bacteria and fungi, and for the treatment of infections of the intestinal system and the urinary tract of warm-blooded animals caused by pathogenic microorganisms; compositions containing the aforesaid novel esters in combination with a carrier therefor; and processes of using the aforesaid compositions for the described purposes.

3,576,844

N-ALKOXYCARBONYL-AMINOALKYL GUANIDINES

Nakao Ishida, Sendai-shi, Junki Katsube, Saitama-ken, and Shizuo Salto, Toyonaka-shi, Japan, assignors to Sumitomo Chemical Company, Ltd., Osaka, Japan

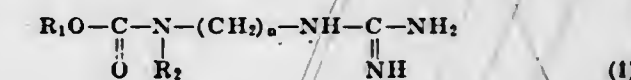
No Drawing. Filed Oct. 9, 1967, Ser. No. 673,969
Claims priority, application Japan, Oct. 13, 1966, 41/67,620

Int. Cl. C07c 133/10; A01n 9/20

U.S. Cl. 260—482

8 Claims

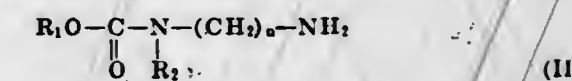
Guanidine derivatives having urethane linkages represented by the formula:



(I)

wherein R₁ is lower alkyl, R₂ is hydrogen atom or a lower alkyl, and n is 2 or 3, and acid addition salts of the derivatives. Said guanidine derivatives and acid salts thereof have useful pharmacological actions such as antiviral and blood pressure lowering actions and the like.

Said derivatives and acid salts thereof are prepared by reacting an N-alkoxycarbonyl-alkylenediamine of the formula:



(II)

wherein R₁, R₂ and n are the same as above, with an S-alkylisothiourea or cyanamide in the presence of an acid (e.g., hydrochloric, sulfuric, nitric or acetic acid), desirably using water or an alcohol as solvent, at a temperature of room temperature to boiling/point of the solvent, and converting the product, if necessary, into a free base and further into another kind of acid salt.

3,576,845

ACETYLENICALLY SUBSTITUTED ARALKYL CARBAMATES

John F. Cavalla, Isleworth, and Alan C. White and Gillian M. Sandison, Windsor, England, assignors to John Wyeth & Brothers Limited, Taplow, Maidenhead, England

No Drawing. Filed Nov. 14, 1967, Ser. No. 683,023
Int. Cl. C07c 125/06

U.S. Cl. 260—482

12 Claims

A group of acetylenically- (e.g., propargyl-) substituted aralkyl carbamates and thiocarbamates is described. Representative members of this group exhibit anti-inflammatory activity when tested on laboratory animals according to standard test procedures.

3,576,846

SULFINYL-CONTAINING ALKENYLSUCCINATES

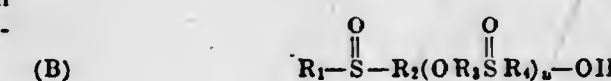
Norman A. Leister, 350 Ginger Road, Huntingdon Valley, Pa. 19006

No Drawing. Filed June 14, 1967, Ser. No. 645,869
Int. Cl. C07c 69/40

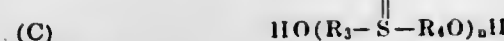
U.S. Cl. 260—485

7 Claims

The novel sulfinyl-containing alkenylsuccinates of this invention are useful as dispersants, corrosion inhibitors and anti-wear agents particularly in lubricating oil and fuel compositions. The novel sulfinyl compounds are prepared by reacting (1) an alkenylsuccinic anhydride, an alkenylsuccinic acid or an alkenylsuccinamic acid and (2) at least one sulfinyl-containing hydroxy compound having the formulas:



or



wherein

y is an integer from 1 to about 50 or more and n is an integer from 1 to 40,

R_1 is selected from the group consisting of (a) an alkyl radical containing from 1 to 24 carbon atoms, (b) an aryl radical (c) an aralkyl radical wherein the alkyl portion of the radical contains from 1 to 4 carbon atoms and (d) an alkaryl radical wherein the alkyl portion contains from 1 to 24 carbon atoms,

R_2 is an alkylene radical having 2 to 5 carbon atoms, and R_3 and R_4 are alkylene radicals having 2 to 5 carbon atoms, a phenylene radical or a (C_1-C_4) alkyl substituted phenylene radical with the proviso that n is 1 when R_3 and R_4 are phenylene or (C_1-C_4) alkyl substituted phenylene.

3,576,847

HALOGENATED ACRYLIC MONOMERS AND POLYMERS

Maurice Troussier, Pierre-Benite, and Edouard Grimaud, Oullins, France, assignors to Uguine Kuhlmann, Paris, France

No Drawing. Filed Jan. 19, 1967, Ser. No. 610,238

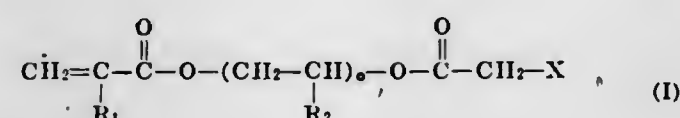
Claims priority, application France, Jan. 21, 1966, 46,681

Int. Cl. C07c 69/54

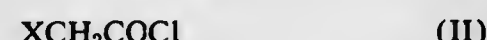
U.S. Cl. 260-486

5 Claims

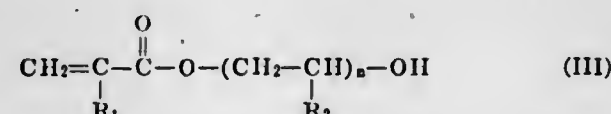
Halogenated acrylic monomers of the formula



wherein R_1 and R_2 each is a hydrogen atom or a methyl group, X is a chlorine or a bromine atom, and n is an integer from 1 to 5, are prepared by reacting in the presence of an acid acceptor, (a) halogenated acetyl chloride of the formula



wherein X is a chlorine or a bromine atom and (b) hydroxyl group containing acrylic monomers of the formula



wherein R_1 , R_2 and n each has the same meaning as stated hereinabove. The halogenated acrylic monomers thus produced are suitable for preparing polymers containing reactive halogen atoms.

3,576,848

CAUSTIC WASHING AS A METHOD OF PURIFYING ORGANIC UNSATURATED COMPOUNDS

Jon M. Johnson and Alfred G. Robinson III, Longview, Tex., assignors to Eastman Kodak Company, Rochester, N.Y.

No Drawing. Filed Oct. 2, 1967, Ser. No. 672,012

Int. Cl. C07c 69/54

U.S. Cl. 260-486

5 Claims

Alkyl methacrylates prepared by the hydrogen iodide-catalyzed oxidative dehydrogenation reaction are purified by washing with a dilute solution of sodium or potassium hydroxide to remove deleterious color and reduce iodine values.

3,576,849

6-HALO-3,5-SECO-A-NOR-STERIODS

Milan Radoje Uskokovic, Upper Montclair, N.J., assignor to Hoffmann-La Roche Inc., Nutley, N.J.

No Drawing. Continuation-in-part of application Ser. No. 680,308, Nov. 3, 1967. This application Sept. 13, 1968, Ser. No. 759,794

Int. Cl. C07c 69/14, 69/24

U.S. Cl. 260-488

6 Claims

6-halo-4-oxa-3-oxo-androstanes are prepared via halogenation of 3,5-seco-A-nor-3-oiic acids followed by lactonization. End-products are useful as anti-androgens.

3,576,850

CONTINUOUS PROCESS FOR PRODUCING ACRYLIC ESTERS

Naoya Kominami, Tokyo, Kyugo Tanaka, Iruma-gun, Saitama-ken, and Itaru Watanabe, Tokyo, Japan, assignors to Asahi Kasei Kogyo Kabushiki Kaisha, Osaka, Japan

Filed May 23, 1969, Ser. No. 827,373

Claims priority, application Japan, May 30, 1968, 43/36,350

Int. Cl. C07c 69/54

U.S. Cl. 260-486

4 Claims

In a process for producing alkyl acrylates from acrylic acid and alkyl sulfates or alkyl arylsulfonates, the continuous process in which the reactants are passed through a pipe reactor in a residence time of 10 seconds to 20 minutes and allowed to react in liquid phase at a temperature of 150° C. to 220° C. under a pressure of 2 kg./cm.² to 15 kg./cm.² (gauge) to obtain the alkyl acrylates in high conversion with good selectivity.

3,576,851

1-PROPION-AMIDO-4-(3-PROPOXY-SODIUM SULFONATE)-BENZENE

Albert René Joseph Castaigne, Toulouse, France, assignor to Centre d'Etudes pour l'Industrie Pharmaceutique, Toulouse, France

No Drawing. Filed Apr. 29, 1968, Ser. No. 725,160

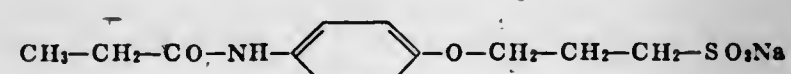
Claims priority, application France, May 16, 1967, 106,530

Int. Cl. C07c 143/58

U.S. Cl. 260-507

1 Claim

New 1-propionamido-4-(3-propoxy-sodium sulfonate)-benzene of formula:



having antalgic, anti-inflammatory, and anti-pyretic properties. This compound is prepared by reacting 1-propionamido-4-hydroxy-benzene with propane sulfone in the presence of sodium hydroxide.

3,576,852

PROCESS FOR PREPARATION OF ARYL METHYL MALONIC ACIDS

Siegfried Scheler, Wiesbaden-Schierstein, and Fritz Endermann, Wiesbaden, Germany, assignors to Kalle Aktiengesellschaft, Wiesbaden-Biebrich, Germany

No Drawing. Filed Nov. 24, 1967, Ser. No. 685,280

Claims priority, application Germany, Nov. 26, 1966, K 60,799

Int. Cl. C07c 51/00

U.S. Cl. 260-515

7 Claims

This invention relates to a process for the preparation of an aryl methyl malonic acid which comprises condensing malonic acid with an aryl aldehyde in the pres-

ence of an acid chloride to form an aryl methylene malonic acid, and hydrogenating the latter to form an aryl methyl malonic acid.

3,576,853

CYCLOPROPANECARBOXYLIC ACID DERIVATIVES OF 5H-DIBENZO[a,d]CYCLOHEPTENES

Carl Kaiser, Haddon Heights, N.J., and Charles L. Zirkle, Berwyn, Pa., assignors to Smith Kline & French Laboratories, Philadelphia, Pa.

No Drawing. Original application June 3, 1965, Ser. No. 461,176, now Patent No. 3,449,427, dated June 10, 1969. Divided and this application Dec. 27, 1968, Ser. No. 787,562

Int. Cl. C07c 63/44

U.S. Cl. 260-515

5 Claims

Cyclopropanecarboxylic acid and amide derivatives of 5H-dibenzo[a,d]cycloheptenes wherein the tricyclic nucleus may be substituted by chlorine, bromine, trifluoromethyl, methyl, methoxy or methylthio, as well as 10,11-dihydro derivatives, and the amides are N-mono or N,N-disubstituted lower alkyl or include a cyclic amido moiety, are useful as intermediates for the preparation of corresponding aminocyclopropane derivatives. The latter have antidepressant, tranquilizing and anorectic activity. The acids and amides are generally prepared from appropriate 5H-dibenzo[a,d]cycloheptenes by alkylation with a bromocyclopropanecarboxylate or a bromocyclopropane carboxamide, respectively. Also useful in the preparation of the acids are 5-vinyl-5H-dibenzo[a,d]cycloheptenes.

3,576,854

METHOD OF OPTICALLY RESOLVING RACEMIC BASES AND OPTICALLY ACTIVE N-(1-PHENYLETHYL)-CARBAMYL CARBOXYLIC ACIDS FOR USE IN SAID METHOD

Ernst Felder and Davide Pitre, Milan, Italy, assignors to Bracco Industria Chimica, Societa per Azioni, Milan, Italy

No Drawing. Filed Feb. 25, 1969, Ser. No. 802,204

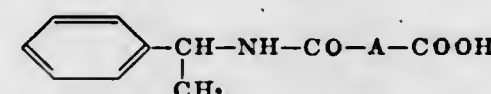
Claims priority, application Switzerland, Mar. 15, 1968, 3,917/68

Int. Cl. C07c 103/34

U.S. Cl. 260-518

8 Claims

The optically active forms of acids of the formula



wherein A is a single carbon-to-carbon bond, a radical of the formula $-(CH_2)_n-$ (n being an integer between 1 and 4), the radical $-\text{CH}=\text{CH}-$, or phenylene are readily available from inexpensive starting materials and well suited for forming diastereoisomers with racemic bases. The diastereoisomers may be fractionated by crystallization in a conventional manner and decomposed to isolate the optically active forms of the base. The acid is recovered in good yield.

3,576,855

N-CHLOROFORMYL-N-PHENYLGLYCINE, INTERMEDIATE FOR PREPARING PENICILLINS

William Dvonch, Radnor, and Harvey E. Alburn, West Chester, Pa., assignors to American Home Products Corporation, New York, N.Y.

No Drawing. Original application Mar. 1, 1965, Ser. No. 436,342, now Patent No. 3,453,263, dated July 1, 1969.

Divided and this application Feb. 7, 1969, Ser. No. 816,854

Int. Cl. C07c 101/44

U.S. Cl. 260-518

1 Claim

A compound, N-chloroformyl-N-phenylglycine, used as an intermediate in the preparation of penicillins.

3,576,856

PROCESS FOR SIMULTANEOUS CATALYST RECOVERY AND BYPRODUCT REMOVAL

Darwin Darrell Davis, Victoria, Tex., assignor to E. I. du Pont de Nemours and Company, Wilmington, Del.

Filed Dec. 12, 1966, Ser. No. 601,170

Int. Cl. C07c 55/04

U.S. Cl. 260-531

4 Claims

In the synthesis of 1,12-dodecanedioic acid comprising nitric acid oxidation of cyclododecanol/cyclododecanone in the presence of copper and vanadium and crystallizing the product to leave a recycle stream, a process for the simultaneous recovery of catalyst and removal of organic byproducts comprising (1) heating that recycle stream; (2) adjusting the concentrations of the components thereof to levels specified herein to form an oil phase enriched in organic byproducts and an aqueous phase enriched in catalyst; and (3) then separating those phases.

3,576,857

PROCESS OF PREPARING UNSATURATED ACIDS AND ALDEHYDES

Jamal S. Eden, Akron, Ohio, assignor to The B. F. Goodrich Company, New York, N.Y.

No Drawing. Continuation-in-part of application Ser. No. 483,858, Aug. 30, 1965. This application Nov. 16, 1967, Ser. No. 683,476

Int. Cl. C07c 45/04, 47/22, 57/04

U.S. Cl. 260-533

9 Claims

Unsaturated aldehydes and carboxylic acids as acrolein or methacrolein and acrylic acid or methacrylic acid are obtained by the reaction of propylene or isobutylene with oxygen at an elevated temperature in the presence of a catalyst containing a mixture of molybdenum oxide, tellurium oxide and an aluminum phosphate.

3,576,858

PREPARATION OF CALCIUM GLUTAMATE

Naomasa Mizoguchi and Tadashi Takeshiro, Tokyo, and Kenkichi Ito, Sagami-hara-shi, Japan, assignors to Ajinomoto Co., Inc., Tokyo, Japan

No Drawing. Filed Sept. 8, 1967, Ser. No. 666,449

Claims priority, application Japan, Sept. 12, 1966, 41/59,923

Int. Cl. C07c 101/22

U.S. Cl. 260-534

5 Claims

Calcium glutamate is prepared from the β -cyano, β -carboxy, and β -carbo-lower-alkoxy derivatives of 5-ethylhydantoin by ring fission at 100°-250° C., in the presence of aqueous ammonia, removal of the carbon dioxide thereby liberated, and by heating the residual reaction mixture to an elevated temperature with an equivalent amount of lime until calcium glutamate precipitates and can be recovered.

3,576,859

PROCESS OF PREPARING LYSINE MONOHYDROCHLORIDE

Johannes E. Nelemans, Geleen, Netherlands, assignor to Stamicarbon N.V., Heerlen, Netherlands

No Drawing. Filed Nov. 22, 1968, Ser. No. 778,327

Claims priority, application Netherlands, Nov. 22, 1967, 6715824

Int. Cl. C07c 99/06, 99/12, 101/24

U.S. Cl. 260-534

5 Claims

There is provided a process for preparing lysine monohydrochloride by hydrolysis of α -amino- ϵ -caprolactam wherein the hydrolysis mixture is passed through an anion exchanger to remove HCl therefrom. The HCl bound to the anion exchanger is removed therefrom by formation of a salt with additional α -amino- ϵ -caprolactam and the salt is then used in the hydrolysis step.

3,576,874

2,2''-(4,4 - DIPHENYL-3-BUTEN- AND - BUTYLIDENE) BIS (p-PHENYLENEOXY) BIS TRIETHYLAMINES

Josef Fried, Chicago, Ill., and Edward Joseph Pribyl, Metuchen, N.J., assignors to E. R. Squibb & Sons, Inc., New York, N.Y.

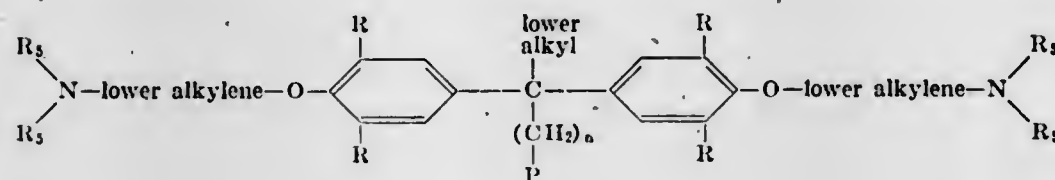
No Drawing. Continuation-in-part of applications Ser. No. 288,630, June 18, 1963, and Ser. No. 566,207, July 19, 1966. This application Sept. 27, 1967, Ser. No. 671,094

Int. Cl. C07c 87/28

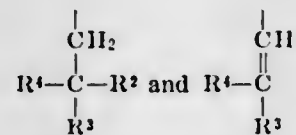
U.S. Cl. 260—570

14 Claims

A compound of the formula:



wherein P represents a radical of the group consisting of:



each R is a member of the group consisting of hydrogen, hydroxy, nitro, lower alkyl, lower alkoxy, lower alkanoyl, halo and diloweralkylamino-lower alkylene; R² is a member of the group consisting of hydrogen and hydroxy; R³ is a member of the group consisting of hydrogen, lower alkyl, lower alkenyl, lower alkynyl, (R)_m-phenyl, (R)_m-naphthyl, (R)_m-phenyl-lower alkyl, (R)_m-naphthyl-lower alkyl, cycloalkyl of 3 to 7 carbon atoms, and cycloalkyl-lower alkyl, wherein the cycloalkyl has 3 to 7 carbon atoms; R⁴ is a member of the group consisting of lower alkyl, lower alkenyl, lower alkynyl, (R)_m-phenyl, (R)_m-naphthyl, (R)_m-phenyl-lower alkyl, (R)_m-naphthyl-lower alkyl, cycloalkyl of 3 to 7 carbon atoms, and cycloalkyl-lower alkyl, wherein the cycloalkyl has 3 to 7 carbon atoms; each R⁵ is a member of the group consisting of hydrogen, lower alkyl, hydroxy-lower alkyl, and phenyl-lower alkyl; m is an integer from 0 to 3; and n is an integer from 1 to 5; and acid-addition salts thereof, the aforesaid compound inhibits cholesterol biosynthesis.

3,576,875

PROCESS FOR ISOLATING 4,4'-DIAMINO DIPHENYLMETHANE FROM POLYPHENYLMETHYLENE POLYAMINE MIXTURES

Ernst-Heinrich Rohe, Leverkusen, Germany, assignor to Farbenfabriken Bayer Aktiengesellschaft, Leverkusen, Germany

No Drawing. Filed Mar. 26, 1968, Ser. No. 715,988
Claims priority, application Germany, Mar. 30, 1967, F 51,973

Int. Cl. C07c 85/16

U.S. Cl. 260—570

9 Claims

A process for isolating 4,4'-diamino diphenylmethane from a polyphenylmethane polyamine mixture comprises reacting the polyamine mixture with an alkali metal or alkaline earth metal halide, cyanide or thiocyanate and decomposing the resulting adduct formed.

3,576,876

PREPARATION OF O-PHENYLENEDIAMINES

William G. C. Raper, Moorabbin, Victoria, Australia, and Henry P. Crocker, Hornsea, England, assignors to Monsanto Chemicals (Australia) Limited, West Footscray, Victoria, Australia

No Drawing. Filed Dec. 7, 1966, Ser. No. 599,735
Claims priority, application Australia, Dec. 18, 1964, 53,081/64

Int. Cl. C07c 91/42, 85/10

U.S. Cl. 260—575

6 Claims

A process for the preparation of o-phenylenediamines which comprises contacting an o-nitroaniline in the vapor or gaseous phase with hydrogen in the presence of a hydrogenation catalyst.

3,576,877

NITRO-N,N-DIALKYL ANILINE-N-OXIDES

Harry Elmer Albert and Paul Gordon Haines, Lafayette Hill, Pa., assignors to Pennwalt Corporation

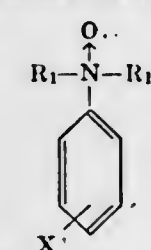
No Drawing. Filed Nov. 7, 1967, Ser. No. 681,093

Int. Cl. C07c 87/28, 87/60, 87/62

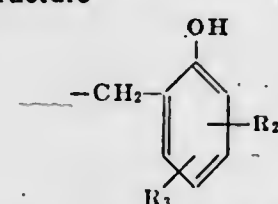
U.S. Cl. 260—577

2 Claims

Process of retarding the formation of popcorn polymers by use of an aromatic amine oxide of structure



where R₁ is lower alkyl, hydroxy substituted lower alkyl, or a group of structure



where R₂ is hydrogen or lower alkyl, and R₃ is a tertiary alkyl group, X is hydrogen, halogen, nitro or lower alkyl, and with the proviso that the total number of carbon atoms in the R₁ groups be at least four.

3,576,878

PROCESS FOR ISOLATING ANHYDROUS N,O-DIMETHYLHYDROXYLAMINE

Earl W. Cummins, Wilmington, Del., assignor to E. I. du Pont de Nemours and Company, Wilmington, Del.

No Drawing. Filed Mar. 7, 1968, Ser. No. 711,171

Int. Cl. C07c 85/16

U.S. Cl. 260—583

3 Claims

This invention teaches a method for continuously recovering anhydrous N,O-dimethylhydroxylamine from an aqueous system containing N,O-dimethylhydroxylamine methyl sulfate and benzaldehyde. The improvement comprises removing all of the benzaldehyde from the aqueous solution, liberating the amine from the residue by the addition of base and then quickly distilling off anhydrous N,O-dimethylhydroxylamine.

3,576,879

β,β'-BIS(ALKYLAMINO) DIETHYL SULFONES AND PREPARATION THEREOF

Albert C. Perrino, Cranston, and Michael G. Israel, East Providence, R.I., assignors to I.C.I./Organics/Inc., Stamford, Conn.

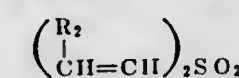
No Drawing. Filed Apr. 10, 1968, Ser. No. 720,384

Int. Cl. C07c 139/00, 147/00, 147/02

U.S. Cl. 260—584

10 Claims

β,β'-bis(alkylamino) diethyl sulfones prepared by reacting a primary amine of the formula R₁NH₂ with a divinyl sulfone or a diallyl sulfone having the formula



R₁ can be alkyl, hydroxyalkyl, alkoxy alkyl, alkyl substituted aminoalkyl, the total number of carbon atoms in R₁ ranging between 1-18. R₂ is hydrogen or methyl. The reaction is carried out at a temperature between -45° C. and 65° C. and the reaction product is useful as an intermediate in the preparation of polyamide by reaction thereof with a dibasic acid chloride or of a polyurea by reaction thereof with a diisocyanate.

3,576,880

5(2,6,6-TRIMETHYL-1-HYDROXY-CYCLOHEX-2-ENYL)-3-METHYLPENTA-2,4-DIEN-1-AL DERIVATIVES

Basil Charles Leicester Weedon, Wimbledon, England, and Hans Mayer, Allschwil, and Ulrich Schwieter, Reinach, Switzerland, assignors to Hoffmann-La Roche Inc., Nutley, N.J.

No Drawing. Filed Feb. 6, 1968, Ser. No. 703,247

Claims priority, application Great Britain, Feb. 14, 1967, 7,094/67

Int. Cl. C07c 37/20, 49/20

U.S. Cl. 260—586

3 Claims

A process for producing abscission and abscission derivatives from the condensation product 2,6,6-trimethyl-4-ethylenedioxy-2-cyclohexen-1-one and 3-methyl-pent-2-en-4-yn-1-ol.

3,576,881

PREPARATION OF MODIFIED OXO CATALYST AND PROCESS RELATING THERETO

William L. Senn, Jr., Baton Rouge, La., assignor to Esso Research and Engineering Company

No Drawing. Filed Feb. 4, 1966, Ser. No. 525,103

Int. Cl. C07c 45/10

U.S. Cl. 260—604

5 Claims

Complex metal carbonyl compounds having the generic formula: M₂(CO)₆(XR₃)₂ wherein M is iron, cobalt or rhodium, and preferably cobalt; X is phosphorus or arsenic, and preferably is phosphorus; and R is an alkyl or alkoxy radical having from about 1 to 20 carbon atoms are prepared by reacting at iron, cobalt or rhodium chelate with a biphilic ligand in the presence of carbon monoxide and hydrogen at elevated temperatures and pressures. The complex metal carbonyl compounds are useful in promoting the reaction of carbon monoxide and hydrogen with olefins to aldehyde and alcohol products.

3,576,882

PRODUCTION OF THIOETHERS AND ETHERS FROM FLUORINE ARYL COMPOUNDS

Frank S. Clark, St. Louis, Mo., assignor to Monsanto Company, St. Louis, Mo.

No Drawing. Filed Dec. 27, 1966, Ser. No. 604,556

Int. Cl. C07c 41/04, 149/30

U.S. Cl. 260—609

10 Claims

Organic ethers and thioethers are produced by the interaction of a fluorine-containing organic compound with a metal oxide or sulfide in the presence of a dipolar aprotic solvent. The organic ethers and thioethers are useful as electronic coolants, diffusion pump fluids, lubricants, damping fluids, etc.

885 O.G.—33

3,576,883

ALKYLIDENEDITHIOBISPHENOLS

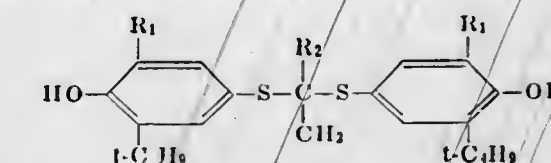
Martin B. Newworth, Pittsburgh, Pa., assignor to Consolidation Coal Company, Pittsburgh, Pa.
No Drawing. Continuation-in-part of application Ser. No. 637,649, May 11, 1967. This application June 30, 1969, Ser. No. 837,956

Int. Cl. C07c 149/36; A61k 27/00

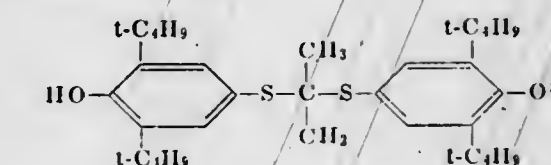
U.S. Cl. 260—609

9 Claims

Compounds having the general formula:



where R₁ is an alkyl radical containing from 1 to 4 carbon atoms, and R₂ is either hydrogen or an alkyl radical containing from 1 to 3 carbon atoms, provided that when R₁ is methyl, R₂ is also methyl. An example of the compounds of this invention is one represented by the following formula:



The compounds are useful for reducing blood cholesterol in warm-blooded animals.

3,576,884

PROCESS FOR PREPARING VINYL ETHERS

James P. Russell, Berkeley Heights, N.J., assignor to Air Reduction Company, Incorporated, New York, N.Y.
No Drawing. Continuation of application Ser. No. 649,848, June 29, 1967. This application Nov. 7, 1969, Ser. No. 871,604

Int. Cl. C07c 41/10

U.S. Cl. 260—611

5 Claims

Vinyl ethers are prepared from sensitive higher alcohols by reacting such alcohols with lower alkyl vinyl ethers in contact with a mercury-amine catalyst.

3,576,885

TERMINALLY UNSATURATED FLUORO-OLEFINS AND PROCESS FOR THE PREPARATION THEREOF

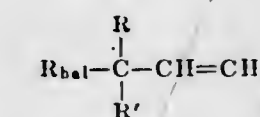
Louis G. Anello, Basking Ridge, and Richard F. Sweeney, Randolph Township, Morris County, N.J., assignors to Allied Chemical Corporation, New York, N.Y.
No Drawing. Filed Nov. 9, 1967, Ser. No. 681,886

Int. Cl. C07c 43/0, 43/14

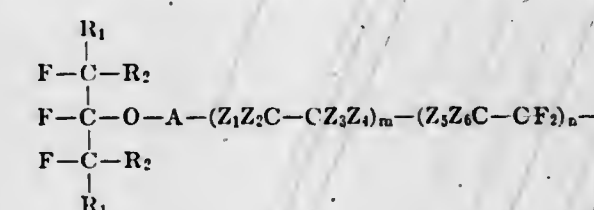
U.S. Cl. 260—614

9 Claims

Terminally unsaturated fluoro-olefinic compounds of the formula

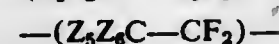


wherein R and R' represent hydrogen or alkyl, and wherein R_{hal} is perfluoroalkyl or a radical of the formula

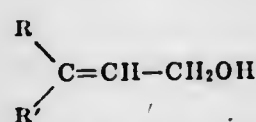


wherein R₁ and R₂ are Cl, F, alkyl, haloalkyl, or alkylene and haloalkylene groups forming a cycloaliphatic struc-

ture, wherein A represents alkylene or haloalkylene groups, wherein $-(Z_1Z_2C-CZ_3Z_4)-$ and



are bifunctional groups derived from certain telomerizable ethylenically unsaturated compounds, and wherein m and n are integers of from 0 to 75, are prepared by reacting polyfluoroalkyl iodides $H_{hal}I$, wherein R_{hal} has the aforesaid meaning, with 1-hydroxy-2-alkenes having the formula



wherein R and R' have the aforesaid meanings. These terminally unsaturated fluoro-olefinic compounds are useful as intermediates in the preparation of useful polyacrylate oil and stain repellent agents. Certain of these terminally unsaturated fluoro-olefinic compounds are novel compounds.

3,576,886

ISOMERIZATION OF MEDIUM RING CYCLIC ALIPHATIC EPOXIDES

Ming Nan Sheng, Cherry Hill, N.J., and John G. Zajacek, Strafford, Pa., assignors to Atlantic Richfield Company, Philadelphia, Pa.

No Drawing. Filed Mar. 22, 1968, Ser. No. 715,204
Int. Cl. C07c 33/20, 55/04

U.S. Cl. 260-617 3 Claims
Method for the isomerization of cyclic aliphatic epoxides having from 7 to 10 carbon atoms in the ring by contacting the epoxide with lithium orthophosphate or potassium tertiary butoxide at elevated temperatures to produce the corresponding allylic alcohol.

3,576,887

PROCESS FOR THE PREPARATION OF OXAPHEN-ANTHRENE AND INTERMEDIATES THEREFOR

Gordon A. Hughes, Haverford, Timothy Y. Jen, Haverford, and Herchel Smith, Wayne, Pa., assignors to American Home Products Corporation, New York, N.Y.

No Drawing. Continuation-in-part of application Ser. No. 602,126, Dec. 16, 1966. This application May 1, 1967, Ser. No. 634,894

Int. Cl. C07c 37/00, 39/02

U.S. Cl. 260-619 5 Claims
6,6-dialkyltetrahydro- and hexahydro- 6H - dibenzo [b,d] pyrans (I) are obtained by cyclodehydrating a 1-(1'-hydroxy)alkyl - 2 - o - hydroxyphenylcyclohexane or -ene (III). Compounds (III) are obtained by treating a 2-o-alkoxy-phenylcyclohexane- or enecarboxylic acid or ester (II) with a Grignard reagent. Enantiomorphic compounds (I), particularly, (—) - Δ^8 - tetrahydrocannabinol, a biologically active, asymmetric constituent of hashish, are prepared by cyclizing the corresponding enantiomorphic compounds (III).

3,576,888

PROCESS FOR THE PREPARATION OF UNSATURATED FLUORINATED ALCOHOLS

Bernard M. Lichstein, Elizabeth, and Cyril Woolf, Morristown, N.J., assignors to Allied Chemical Corporation, New York, N.Y.

No Drawing. Continuation-in-part of application Ser. No. 641,460, May 26, 1967. This application Mar. 10, 1969, Ser. No. 805,875

Int. Cl. C07c 33/10

U.S. Cl. 260-633 2 Claims
A process for the preparation of unsaturated fluorine-substituted hydroxy compounds whereby fluorinated di-

hydric alcohols are contacted with a dehydrating agent. Excellent yields of high purity product are obtained.

3,576,889

ETHYNYLATION OF KETONES AND ALDEHYDES TO OBTAIN ALCOHOLS

Kenneth R. Martin and Constantinos G. Screttas, Gastonia, N.C., assignors to Lithium Corporation of America, New York, N.Y.

No Drawing. Filed Jan. 26, 1968, Ser. No. 700,692
Int. Cl. C07c 33/04; C23b 5/08

U.S. Cl. 260-638 15 Claims
Ethynylation of ketones and aldehydes by adding acetylene to a suspension of an alkali metal amide in a liquid ether, particularly in the presence of a stabilizing agent, such as dimethylacetamide or dimethylsulfoxide, which serves to activate the formation of a monoalkali metal acetylide and to stabilize said monoalkali metal acetylide and thereafter hydrolyzing to obtain an alcohol.

3,576,890

PROCESS FOR THE PREPARATION OF ALKYLENE GLYCOLS

Robert C. Blinning, St. Louis, Mo., assignor to Monsanto Company

Continuation of application Ser. No. 667,009, Sept. 11, 1967, which is a continuation of application Ser. No. 344,173, Feb. 12, 1964, both now abandoned. This application Dec. 23, 1968, Ser. No. 788,683

Int. Cl. C07d 1/08; C07c 31/20

U.S. Cl. 260-635 3 Claims
Crude alkylene oxides obtained by oxidation of hydrocarbons and containing ester material and material boiling intermediate alkylene oxide and water is introduced into a hydrolyzer having: an upper hydrolysis barrier region comprising intermediate boiling material; a middle hydrolyzing region where part of the alkylene oxide is hydrolyzed to alkylene glycol; and a lower glycol concentration region. The glycol is recovered substantially water free and the alkylene oxide that is not hydrolyzed is recovered.

3,576,891

REMOVAL OF ESTERS AND ACIDS FROM TERTIARY-BUTYL ALCOHOL SOLUTIONS

Rudolph Rosenthal, Broomall, Pa., assignor to Atlantic Richfield Company, Philadelphia, Pa.

No Drawing. Filed Nov. 6, 1967, Ser. No. 681,010
Int. Cl. C07c 29/24; C10e 1/10

U.S. Cl. 260-643 5 Claims
Method for removing esters and acids from a tertiary-butyl alcohol solution by passing the solution in vapor phase over a supported alkali metal hydroxide catalyst.

3,576,892

PREPARATION OF CYCLOPROPYLMETHYL-CHLORIDE

Charles Ferdinand Huebner, Chatham, and Renat Herbert Mizzoni, Long Valley, N.J., and William Richard Scheerer, Carlisle, Pa., assignors to Ciba Corporation, Summit, N.J.

No Drawing. Continuation-in-part of applications Ser. No. 727,657, May 8, 1968, and Ser. No. 767,844, Oct. 15, 1968, which is a continuation-in-part of application Ser. No. 727,682, May 8, 1968. This application Mar. 21, 1969, Ser. No. 809,375

Int. Cl. C07c 17/00, 23/04

U.S. Cl. 260-648 5 Claims
Cyclopropylmethyl chloride or its homologs, which are valuable intermediates or drugs, are prepared by addition of hydrogen bromide to methallyl dichlorides or their homologs and reaction of the resulting 2-bromo-methyl-1,3-dichloropropanes with metals.

3,576,893

PROCESS FOR FORMING CHLOROiodo AND DICHLORO COMPOUNDS

William C. Baird, Jr., Rahway, N.J., assignor to Esso Research and Engineering Company

No Drawing. Filed Apr. 1, 1968, Ser. No. 717,991
Int. Cl. C07c 17/02, 21/04, 25/14

U.S. Cl. 260-651 23 Claims
Chloroiodo and dichloro substituted organic compounds are selectively prepared by reacting an organic compound containing at least one nonaromatic carbon to carbon double bond with cupric chloride and an iodide donor in hydrocarbon media.

3,576,894

PRODUCTION OF CYCLOALKENES

Michailas Genas and Thomas Rüll, Paris, France, assignors to Societe Anonyme dite: Aquitaine-Organico, Paris, France

Filed Feb. 5, 1968, Ser. No. 702,771
Claims priority, application France, Feb. 3, 1967, 93,534; Nov. 29, 1967, 130,273

Int. Cl. C07c 5/02

U.S. Cl. 260-666 22 Claims
This invention relates to a process for the rapid selective hydrogenation of cycloalkapolyenes, particularly those having from 8 to 20 atoms of carbon. The hydrogenation is performed at a temperature of from about 150° to about 220° C. under a hydrogen partial pressure of from about 1 to about 50 atm. and in the presence of a catalyst comprising divided nickel (preferably on a supporting material) which has previously been sulphided by heating with carbon disulphide until the ratio by weight is Ni/S (combined) is from 8 to 30. Preferably the sulphiding temperature is above 200° C., and preferably between 225° and 250° C., while the proportion of catalyst on the supporting material is preferably from about 0.9 to about 9 parts by weight of nickel per 100 parts by weight of the cycloalkapolyene to be hydrogenated.

3,576,895

CONVERSION OF ALKYL AROMATICS

John J. Wise, Philadelphia, Pa., assignor to Mobil Oil Corporation

No Drawing. Continuation-in-part of application Ser. No. 626,339, Mar. 27, 1967, which is a continuation of abandoned application Ser. No. 313,450, Oct. 3, 1963. This application Oct. 23, 1967, Ser. No. 677,847
The portion of the term of the patent subsequent to Apr. 9, 1985, has been disclaimed

Int. Cl. C07c 15/08, 5/24

U.S. Cl. 260-668 2 Claims
Acid mordenite, a crystalline aluminosilicate having a ratio of silicon atoms to aluminum atoms of about 5 to 1, is used as a catalyst for the isomerization of xylenes.

3,576,896

ALKYLATION OF AROMATIC HYDROCARBONS

Benjamin J. Luberoff, Summit, and Abraham P. Gelbein, Plainfield, N.J., assignors to The Lummus Company, Bloomfield, N.J.

No Drawing. Continuation-in-part of application Ser. No. 368,397, May 18, 1964, which is a continuation-in-part of application Ser. No. 348,278, Feb. 28, 1964. This application Mar. 21, 1968, Ser. No. 714,815

Int. Cl. C07c 3/56

U.S. Cl. 260-671 12 Claims
Process for producing n-alkyl aromatic hydrocarbons having an increased center substitution of the aromatic nucleus on the n-alkane wherein toluene, benzene or xylene is alkylated with an n-alkyl chloride having 9-16

carbon atoms per molecule in the presence of a Friedel-Crafts catalyst at a temperature between -25° C. and 10° C. for 5-60 minutes and thereafter the reaction mixture is raised to a temperature of 30°-100° C. and maintained at this temperature for a least 4 minutes. The product is a valuable precursor for making detergents.

3,576,897

PROCESS FOR THE PRODUCTION OF 1,2,4-DIALKYLISOPROPYL-BENZENES AND 1,2,4,5-DIALKYLDIISOPROPYL-BENZENES

Max Strohmeier, Ludwigshafen (Rhine), Germany, assignor to Badische Anilin- & Soda-Fabrik Aktiengesellschaft, Ludwigshafen (Rhine), Germany

No Drawing. Filed July 3, 1968, Ser. No. 742,183
Claims priority, application Germany, July 8, 1967, P 16 43 627.4

Int. Cl. C07c 3/50

U.S. Cl. 260-671 7 Claims
The production of 1,2,4-dialkylisopropylbenzenes and 1,2,4,5-dialkylisopropylbenzenes by reaction of dialkylbenzenes with propylene in the presence of an aluminum chloride/hydrogen chloride catalyst and a polyalkylbenzene which is more basic than 1,4-dimethyl-2,5-diisopropylbenzene.

3,576,898

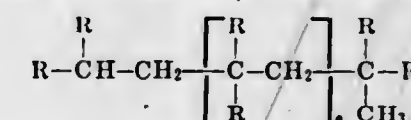
SYNTHETIC HYDROCARBONS

Edward S. Blake, Kettering, Ohio, and Morris R. Ort, Kirkwood, Mo., assignors to Monsanto Company, St. Louis, Mo.

No Drawing. Continuation-in-part of application Ser. No. 636,245, May 2, 1967, which is a continuation of application Ser. No. 128,986, Aug. 3, 1961. This application Dec. 6, 1967, Ser. No. 688,379

Int. Cl. C07c 9/16

U.S. Cl. 260-676 8 Claims
Compounds of the class which exhibit wide liquid range and high boiling points having from 24 to about 96 carbon atoms and which have the chemical structure



wherein each R is alkyl and a is a whole number having a value of from 0 to 1. The compounds are particularly useful as jet engine lubricants.

3,576,899

METHOD FOR MANUFACTURING HIGH PURITY METHANE

Tadashi Ishiguro, Tokyo, Akira Tomita, Kawasaki-shi, Shohachi Egashira, Sagami-hara-shi, Tetsuji Nakamura, Atsugi-shi, and Hiroo Matsuoka, Yokohama-shi, Japan, assignors to Japan Gasoline Co., Ltd., Tokyo, Japan

No Drawing. Filed Apr. 18, 1968, Ser. No. 722,199
Claims priority, application Japan, Apr. 27, 1967, 42/27,098

Int. Cl. C07c 9/04; C10g 13/02, 13/30

U.S. Cl. 260-676 5 Claims
In the manufacture of methane from a hydrocarbon having two or more carbon atoms per molecule by hydrocracking the same, i.e. by passing the hydrocarbon jointly with hydrogen through a bed of highly activated solid nickel catalyst, a high purity methane will be obtained if the maximum temperature of said catalyst bed is held within the range from 400° C. to 600° C. by supplying steam to said bed and if the temperature at the outlet of said bed is maintained 100° C. lower than said maximum temperature by removing reaction heat from the catalyst bed by means of indirect heat exchange.

3,576,900

PREPARATION OF DIOLEFINS FROM TERTIARY AND SECONDARY ALKYL HALIDES

Kenneth J. Frech, Tallmadge, and Frederic H. Hoppstock and Louis A. Falvo, Akron, Ohio, assignors to The Goodyear Tire & Rubber Company, Akron, Ohio

No Drawing. Filed Feb. 27, 1969, Ser. No. 803,100

Int. Cl. C07c 1/30

U.S. Cl. 260—680

9 Claims

A process is disclosed for the preparation of diolefins which comprises simultaneously dehydrohalogenating and dealkylating a halide selected from the group of 2-halo pentanes, 3-halo pentanes, 2-halo-2-methyl pentanes, 3-halo-3-methyl pentanes, 2-halo-3-methyl pentanes, 3-halo-2-methyl pentanes, 2-halo-4-methyl pentanes, 3-halo hexanes, 3-halo-3-ethyl pentanes, 2-halo-3-ethyl pentanes, 2-halo-2-ethyl pentanes, 3-halo-4-methyl hexanes, 3-halo-2-methyl hexanes, 3-halo-5-methyl hexanes, 2-halo-4-methyl hexanes, 2-halo-hexanes, 2-halo-2-methyl hexanes, 2-halo-3-methyl hexanes, 3-halo heptanes, 3-halo-3-ethyl hexanes, 3-halo-3-methyl heptanes, 3-halo-4-methyl heptanes, and 3-halo-2-methyl heptanes, over a catalyst which is an oxide of an element selected from the group of copper, beryllium, magnesium, calcium, strontium, barium, zinc, cadmium, boron, aluminum, gallium, indium, silicon, tin, lead, titanium, zirconium, antimony, bismuth, vanadium, chromium, molybdenum, tungsten, manganese, rhenium, iron, cobalt, nickel, cerium, praseodymium and thorium, at temperatures of 500° C. to 800° C.

3,576,901

METHOD OF MODIFYING A ZEOLITE

George T. Kokotailo and John F. Charnell, Woodbury, N.J., assignors to Mobil Oil Corporation

No Drawing. Filed Sept. 20, 1968, Ser. No. 761,301

Int. Cl. C07c 5/18; C01b 33/28

U.S. Cl. 260—683.3

17 Claims

A method for treating a zeolitic composition in its ammonium form which comprises contacting said zeolite with a metal salt under solid-state conditions.

3,576,902

PROCESS FOR PREPARATION OF WAX RANGE LINEAR ALPHA OLEFINS

Roby Bearden, Jr., Baton Rouge, and Neville L. Cull, Baker, La., assignors to Esso Research and Engineering Company

No Drawing. Continuation-in-part of application Ser. No. 675,335, Oct. 16, 1967. This application Dec. 20, 1968, Ser. No. 785,791

Int. Cl. C07c 3/18

U.S. Cl. 260—683.15

8 Claims

An ethylene growth process for obtaining reaction product mixtures rich in linear C₂₂ to C₂₀₀ wax range olefins, especially linear alpha olefins of the C₃₀ to C₁₄₀ carbon number range. An ethylene oligomerization reaction is conducted in a nonpolar diluent in the presence of an oligomerization catalytic mixture consisting of a transition metal halide and an organo aluminum halide, previously modified by treatment with an organic phosphite or phosphine compound to yield said wax range olefins without substantial production of high molecular weight polymers. Pressures and temperatures are selected to maintain a molar ratio of ethylene to product olefins sufficient to minimize copolymerization of the product olefins, temperatures ranging generally up to about 75° C.

3,576,903

EPOXY-TERMINATED ADDUCTS OF CARBOXY TERMINATED POLYESTERS AND POLYEPOXIDES

Gaylord L. Groff, North St. Paul, Minn., assignor to Minnesota Mining and Manufacturing Company, St. Paul, Minn.

No Drawing. Continuation-in-part of application Ser. No. 478,483, Aug. 9, 1965. This application Apr. 29, 1968, Ser. No. 725,213

Int. Cl. C08g 45/12, 45/14, 47/00

U.S. Cl. 260—824

8 Claims

Epoxy-terminated polymers comprising an adduct of an epoxy resin and an acid-terminated polymer having ester and amide linkages. The adduct includes at least two epoxide equivalent weights for each acid equivalent weights for each acid equivalent weight of acid-terminated polymer. These epoxy-terminated polymers are rapidly curable with appropriate hardeners and catalysts and yet form flexible products.

3,576,904

BLENDS OF ORGANOSILOXANE GUMS AND BLOCK COPOLYMERS OF POLYVINYL AROMATICS AND POLYDIMETHYLSILOXANES

John C. Saam and Charles W. Lentz, Midland, Mich., assignors to Dow Corning Corporation, Midland, Mich.

No Drawing. Filed Mar. 10, 1969, Ser. No. 805,791

Int. Cl. C08g 47/06

U.S. Cl. 260—825

15 Claims

Blends of organosiloxane gums and a block copolymer of two blocks where one block is a vinyl aromatic polymer and the other block is polydimethylsiloxane are disclosed. The block copolymers are present in amounts of 15 to 150 parts by weight per 100 parts by weight of the organosiloxane gum. These blends when cured to elastomers have improved physical properties over the cured unfilled organosiloxane gums. These blends cure to useful elastomers.

3,576,905

ARC RESISTANT SILOXANE VULCANIZABLE AT ROOM TEMPERATURE

Robert L. McKellar, Midland, and Ronald C. Howden, Williams Township, Bay County, Mich., assignors to Dow Corning Corporation, Midland, Mich.

No Drawing. Filed Dec. 1, 1969, Ser. No. 881,288

Int. Cl. C08g 47/02

U.S. Cl. 260—825

8 Claims

A room temperature vulcanizable ketoxime siloxane block copolymer of a polydiorganosiloxane block and a monoorganosiloxane block being endblocked with mono-organoketoximesiloxane units is useful as an arc resistant material.

3,576,906

RESIN PROVIDING COMPOSITIONS COMPRISING A REACTION PRODUCT OF AN EPIHALOHYDRIN POLYMER AND A MERCAPTO-ALKANOL

Richard A. Hickner and Hugh A. Farber, Midland, Mich., assignors to The Dow Chemical Company, Midland, Mich.

No Drawing. Continuation-in-part of application Ser. No. 652,732, July 12, 1967, which is a continuation-in-part of application Ser. No. 407,578, Oct. 29, 1964. This application Oct. 25, 1968, Ser. No. 770,780

The portion of the term of the patent subsequent to Dec. 10, 1985, has been disclaimed

Int. Cl. C08g 23/00

U.S. Cl. 260—849

35 Claims

A resinous material is produced by reacting a mercapto-alkanol with epihalohydrin polymers or epihalohydrin copolymers in the presence of a base. The products of the reaction are useful as resin intermediates. Epichlorohydrin copolymer-mercapto alkanol products are useful as protective colloids for aqueous dispersions of synthetic resins. They can be reacted with aminoplast resins to produce thermoset resins and they can be reacted with polyisocyanates to produce polyurethane resins and foams.

3,576,907

METHOD OF PRODUCING MIXED FILAMENTS OF POLYIMIDES AND POLYETHER-POLYESTERS

Isao Kimura, Osaka, Fumimaro Ogata, Nishinoimiya, and Katsuhiko Nagamine, Takatsuki, Japan, assignors to Kanegafuchi Boseki Kabushiki Kaisha, Tokyo, Japan

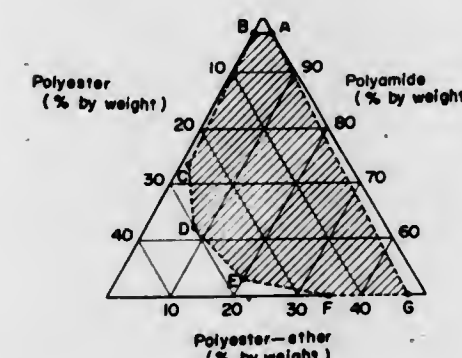
Filed Jan. 22, 1968, Ser. No. 699,733

Claims priority, application Japan, Jan. 26, 1967, 42/5,181; Feb. 13, 1967, 42/9,363

Int. Cl. C08g 41/04

U.S. Cl. 260—857

25 Claims



Production of mixed filaments, which comprises melt blending fiber forming polyamide component, polyester-ether component and polyester component, an amount of the polyamide component being 97 to 50% by weight based on the total amount of the mixture, a ratio of the polyester component to the polyester-ether component being 0/100-95/5 (by weight) and spinning and drawing the resulting blend. The resulting mixed filaments have highly improved tenacity, dyeing affinity, elasticity, instant resilience and elasticity recovering percentage for elongation, and a low permanent deformation. The dispersibility, spinnability and drawability are excellent in said production.

3,576,908

CROSSLINKABLE COMPOSITION OF UNSATURATED POLYMERS AND PRECURSOR OF A POLYFUNCTIONAL NITRILE N-OXIDE

Karl Brack, Wilmington, Del., assignor to Hercules Incorporated, Wilmington, Del.

No Drawing. Continuation-in-part of application Ser. No. 811,203, Mar. 27, 1969. This application Feb. 20, 1970, Ser. No. 13,175

Int. Cl. C08g 41/04

U.S. Cl. 260—858

22 Claims

A cross-linkable composition is obtained by admixing an unsaturated polymer, a precursor of a polyfunctional nitrile N-oxide or nitrile imine compound and an ammonia- or amine-yielding compound selected from the group consisting of ammonia- or amine-yielding coordination compounds of certain metals, ammonia- or amine-yielding extra-coordinate silicate salts and amine-yielding organic-substituted ammonium salts.

3,576,909

CATALYZED ISOMERIZATION OF α - β UNSATURATED CARBOXYLIC ACID ESTERS

Claude J. Schimide, Hudson, and Arden E. Schmucker, Hartsville, Ohio, assignors to The General Tire & Rubber Company

No Drawing. Filed Jan. 19, 1968, Ser. No. 699,025

Int. Cl. C08f 1/76, 21/02, 27/00

U.S. Cl. 260—864

5 Claims

Morpholine or its alkyl derivatives are used as catalysts for the isomerization of α - β unsaturated esters of cis-configuration into trans-configuration. The isomerization may proceed at low temperatures with good yields and is useful for production of fiber reinforced plastic lamination resins from maleic anhydride via maleate polyesters, which are then isomerized to fumarate polyesters.

3,576,910

A-B-S POLYBLEND

Michael B. Jastrzebski, Ware, Mass., assignor to Monsanto Company, St. Louis, Mo.

No Drawing. Filed Oct. 23, 1967, Ser. No. 681,953

Int. Cl. C08f 41/12

U.S. Cl. 260—876

22 Claims

There is disclosed a polyblend composition having a matrix of an interpolymer of monovinylidene aromatic hydrocarbon and an unsaturated nitrile, and first and second graft copolymers each having a rubber substrate and a superstrate of an interpolymer of a monovinylidene aromatic hydrocarbon and an unsaturated nitrile. The first and second graft copolymers are relatively highly cross-linked and relatively lowly cross-linked, respectively. The combined graft copolymers comprise 1.0 to 70.0 percent by weight of the polyblend, and the first graft copolymer comprises about 60.0 to 95.0 percent by weight of the combined graft copolymers.

A process for making such polyblends is disclosed wherein the two graft copolymers are prepared separately and thereafter blended although both may be prepared in a single reactor from suitable controlled rubber feedstocks. Other components may optionally be included.

3,576,911

SHOE SOLE COMPOUND

Frank S. Maxey, Akron, Ohio, assignor to The Goodyear Tire & Rubber Company, Akron, Ohio

No Drawing. Filed Mar. 27, 1969, Ser. No. 811,260

Int. Cl. C08f 33/08; C08g 39/10

U.S. Cl. 260—876

2 Claims

A polymeric material useful for shoe soles can be prepared by blending, e.g., on a heated mill: (I) 15 to 85 phr. (parts per hundred total resin) of styrene/butadiene/styrene (80/20 to 20/80 weight percent) block copolymer, (II) 20 to 80 phr. of styrene/butadiene (75/25 to 95/5 weight percent) copolymer resin, and (III) 10 to 90 phr. of ethylene/vinyl acetate (91/9 to 55/45 weight percent).

Styrene/isoprene block copolymers may be substituted in (I) and polyester resins in (III) above.

3,576,912

HALOGENATED AND QUATERNIZED BLOCK POLYMERS

De Loss E. Winkler, Orinda, Calif., assignor to Shell Oil Company, New York, N.Y.

No Drawing. Filed Sept. 26, 1968, Ser. No. 763,025

Int. Cl. C08f 15/04

U.S. Cl. 260—880

6 Claims

Block copolymers having a high water absorption capacity, especially useful as water purification membranes comprise selectively halogenated and quaternized block polymers (and their hydrogenated counterparts) of monovinyl arenes and conjugated dienes wherein substantially all of the halogenation or quaternization has occurred in the diene block.

3,576,913

BLOCK COPOLYMER ELASTIC BANDS AND PROCESS FOR THE PREPARATION OF SAME

Donald W. Johnson, Redondo Beach, and Eugene T. Bishop, Moraga, Calif., assignors to Shell Oil Company, New York, N.Y.

No Drawing. Continuation-in-part of abandoned application Ser. No. 463,925, June 14, 1965. This application June 23, 1969, Ser. No. 835,813

Int. Cl. C08f 15/04; B29c 17/00, 17/14

U.S. Cl. 260—880

5 Claims

As an article of manufacture, a novel elastic band made of a block copolymer having the general configuration A—B—A wherein each A is a vinyl arene block of from 8,000 to 25,000 molecular weight, B is a conjugated diene block of from 40,000 to 150,000 molecular weight and wherein the blocks A comprise between about 20 and 40%

by weight of the total block copolymer. The block copolymer may be hydrogenated. A novel continuous process is provided for the manufacture of such elastic bands.

3,576,914

THERMAL DEHYDROCHLORINATION OF POLY-VINYL CHLORIDE AND GRAFT COPOLYMERS THEREFROM

Frank J. Donat, Cleveland, Ohio, assignor to The B. F. Goodrich Company, New York, N.Y.
No Drawing. Continuation-in-part of application Ser. No. 553,629, May 31, 1966. This application May 26, 1969, Ser. No. 828,004

Int. Cl. C08f 15/28

U.S. Cl. 260—884

7 Claims

Porous poly(vinyl chloride) resin is subjected to a specific method of dehydrochlorination. This unsaturated material is then converted by graft polymerization to hitherto unattainable levels of percent grafting efficiencies.

3,576,915

MODIFIED INTERPOLYMER COATINGS

Paul R. Graham, Ballwin, and August F. Ottinger, St. Louis, Mo., assignors to Monsanto Company, St. Louis, Mo.

No Drawing. Filed Nov. 17, 1969, Ser. No. 877,463

Int. Cl. C08f 37/18, 41/12

U.S. Cl. 260—897

17 Claims

This invention is directed to a composition comprising a polybasic carboxylic anhydride/vinyl monomer interpolpolymer and an interpolpolymer consisting of ethylene, vinyl chloride, and optionally other ethylenically unsaturated monomers. The composition has use as a flexible tough film coating for fibrous substrates.

3,576,916

ALICYCLIC PHOSPHOROHYDRAZIDOTHIOATES

Leon Farber, Brooklyn, N.Y., assignor to Tenneco Chemicals Inc.

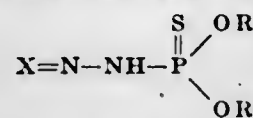
No Drawing. Filed May 20, 1968, Ser. No. 730,612

Int. Cl. C07f 9/24

U.S. Cl. 260—923

7 Claims

Alicyclic phosphorohydrazidothioates that are useful as insecticides have the structural formula



wherein each R represents an alkyl group having from 1 to 4 carbon atoms or a phenyl group and X represents a cycloalkylidene group having from 5 to 10 carbon atoms, a cycloalkylalkylidene group having from 5 to 10 carbon atoms, or a substituted cycloalkylidene group having as substituents one or more lower alkyl groups, carboxyl groups, or $-CH_2SO_3H$ groups. Among the most active of these compounds as insecticides are O,O-diethyl camphor phosphorohydrazidothioate, O,O-diethyl menthone phosphorohydrazidothioate, and O,O-diethyl-3,3,5,5-tetramethylcyclohexylidene phosphorohydrazidothioate.

3,576,917

PENTAERYTHRITOL PHOSPHITES CONTAINING MORE THAN TWO HYDROGENATED PHENOLIC GROUPS

Lester Friedman, Beachwood, Ohio, assignor to Weston Chemical Corporation, New York, N.Y.

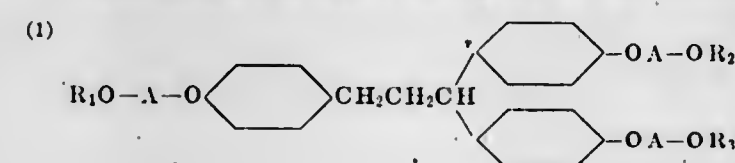
No Drawing. Filed Aug. 2, 1968, Ser. No. 749,610

Int. Cl. C07f 9/16

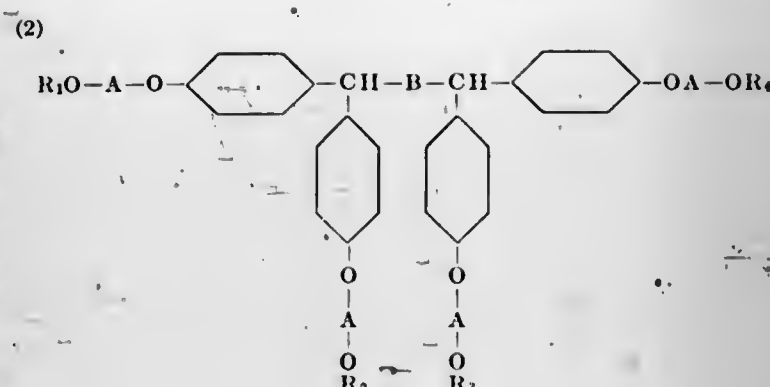
U.S. Cl. 260—927

15 Claims

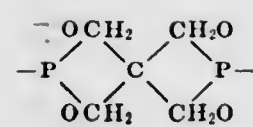
Compounds are prepared having one of the formulae



and



where A is

B is $(CH_2)_n$ or

where n is an integer from 0 to 10, R_1 , R_2 , R_3 and R_4 are alkyl, aryl, alkenyl, haloaryl or the monovalent residue of a dihydric phenol or hydrogenated dihydric phenol. Preferably at least one of the R groups, and most preferably all of the R groups are residues of hydrogenated dihydric phenols.

The compounds are useful as stabilizers for halogen containing polymers, hydrocarbon polymers hydrocarbon oils foodstuffs. Those compounds having free hydroxyl groups can be used as reactive stabilizers for polyurethanes and polyesters.

3,576,918

PENTAERYTHRITOL HYDROGENATED BISPHENOL A PHOSPHITES

Kenneth H. Rattenbury, Morgantown, W. Va., assignor to Weston Chemical Corporation, New York, N.Y.

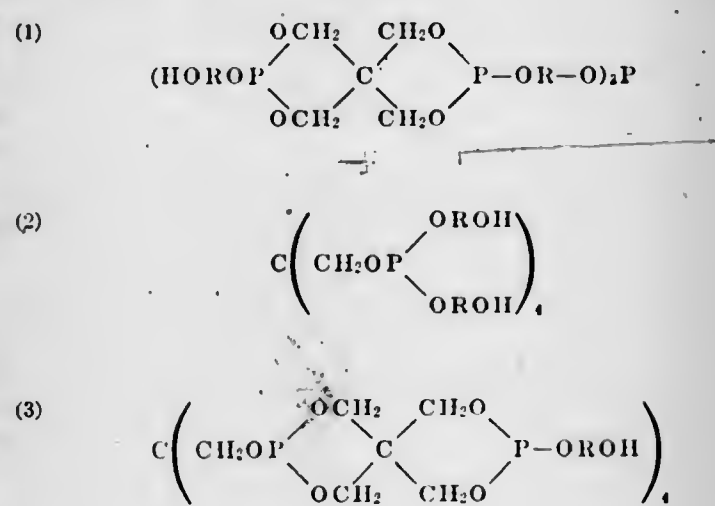
No Drawing. Filed Aug. 5, 1968, Ser. No. 749,943

Int. Cl. C07f 9/08

U.S. Cl. 260—927

12 Claims

Phosphites are prepared having one of the formulae:



where R is the residue of a hydrogenated dihydric phenol, preferably hydrogenated-bisphenol A.

The pentaerythritol can be replaced by dipentaerythritol or tripentaerythritol.

The compounds are useful as stabilizers, e.g. for rigid polyvinyl chloride.

3,576,919 POLYMERIC PHOSPHITE PENTAERYTHRITOL TRIADS

Kenneth H. Rattenbury, Morgantown, W. Va., assignor to Weston Chemical Corporation, New York, N.Y.

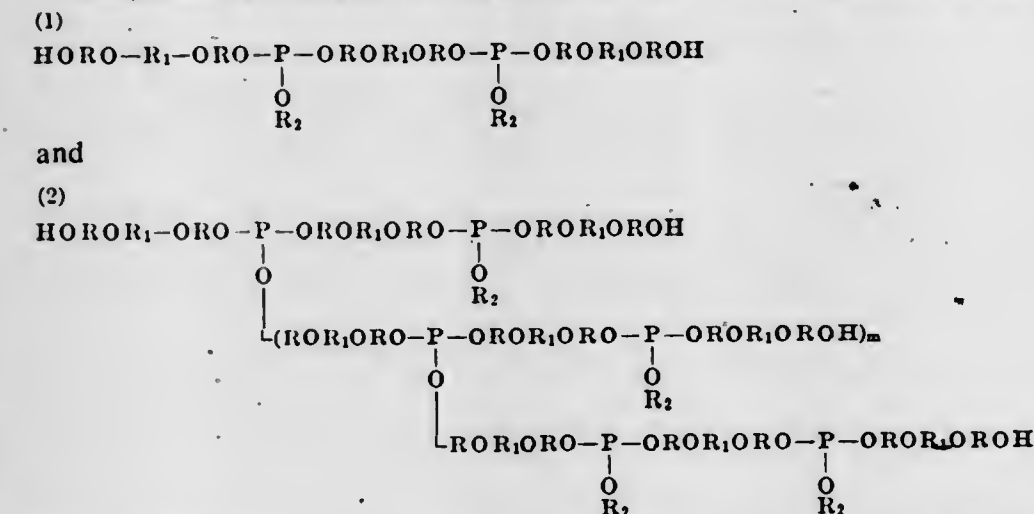
No Drawing. Filed Aug. 5, 1968, Ser. No. 749,981

Int. Cl. C07f 9/08

U.S. Cl. 260—927

20 Claims

Compounds are prepared having one of the formulae



3,576,923

PHOSPHORYLATED ALKYLPHENOL/PHENOL ESTER MIXTURES

Donald Richard Randell and Wilfred Pickles, Stockport, England, assignors to J. R. Geigy A.G., Basel, Switzerland

No Drawing. Filed June 14, 1967, Ser. No. 645,888
Int. Cl. C07f 9/08

U.S. Cl. 260—966 7 Claims
Phosphorylated alkylphenol/phenol ester mixtures in which the weight ratio of the alkyl moiety to the phenol moiety ranges from 0.005 to about 0.65, and the number of carbon atoms per alkyl moiety ranges from 3 to 16, preferably from 3 to 12, which mixtures have satisfactory viscosity range and impart to polymeric materials and especially to polyvinylchloride plasticized therewith good light and heat stability; a process for producing such phosphorylated alkylphenol/phenol ester mixtures; and polymeric materials plasticized therewith.

3,576,924

PROCESS FOR THE PREPARATION OF BIS(BETA-CHLOROETHYL)VINYL PHOSPHONATE AND RELATED COMPOUNDS

Walter Stamm, Tarrytown, N.Y., assignor to Stauffer Chemical Company, New York, N.Y.

Filed Jan. 11, 1968, Ser. No. 696,991
Int. Cl. B01j 11/70; C07f 9/38

U.S. Cl. 260—986 9 Claims

A process is provided for the preparation of α,β -olefinically unsaturated alkyl phosphonate esters by the dehydrohalogenation of the corresponding β -haloalkyl phosphonate esters comprising contacting the haloalkyl phosphonate with basic alumina. A method is also provided for the regeneration of spent alumina catalyst by heating to a temperature in excess of 200° C. These phosphonates are useful as copolymerizing agents, terminating agents, and cross-linking agents in those applications where a degree of flame retardance is of special value in polymeric compositions.

3,576,925

METHOD OF PREPARING FUEL PLATES FOR A NUCLEAR REACTOR

Joseph H. Handwerk, Joliet, Joseph T. Dusek, Downers Grove, and George D. White, Joliet, Ill., assignors to the United States of America as represented by the United States Atomic Energy Commission

No Drawing. Filed May 2, 1968, Ser. No. 726,243
Int. Cl. G21c 21/00

U.S. Cl. 264—5 1 Claim

A process for fabricating large numbers of thin, flat fuel plates for use in a nuclear reactor. A plurality of such fuel plates are hot pressed simultaneously in a single-cavity graphite die using graphite spacers between the plates.

3,576,926

SOLVATION METHOD FOR MANUFACTURING HIGH STRENGTH CASELESS CARTRIDGES

John J. O'Mara, Flanders, N.J., assignor to Hercules Incorporated, Wilmington, Del.

No Drawing. Filed Mar. 28, 1968, Ser. No. 717,001
Int. Cl. C06b 21/02

U.S. Cl. 264—3 12 Claims

Caseless cartridges of high physical strength are prepared by controlled solvation of smokeless powder with a solvating solution. The solvating solution is a mixture of a solvent for the smokeless powder and a non-aqueous carrier liquid which is miscible with the solvent but is a non-solvent for smokeless powder.

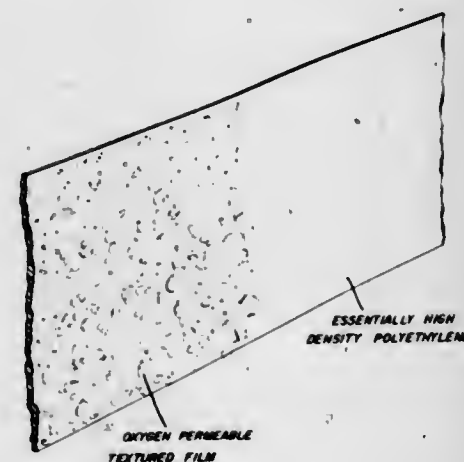
3,576,927

METHOD FOR MAKING SHRINKABLE PERMEABLE TEXTURE FILM

Razmic S. Gregorian, Aiken, S.C., Charles C. Kirk, Laurel, Md., and James A. Cote, Arlington Heights, Ill., assignors to W. R. Grace & Co., New York, N.Y.

Filed Jan. 10, 1969, Ser. No. 790,422
Int. Cl. B29c 24/00; B29d 27/00

U.S. Cl. 264—22 4 Claims



Polyethylene films, highly permeable to oxygen, are made by sintering grains of high-density polyethylene, irradiating the resulting sheet to about 3 megarads, melting out the sintered structure, and irradiating a second time. When the sheet is stretched, oxygen permeability is increased as much as 10 times.

3,576,928

PRODUCTION OF SHAPED ARTICLES

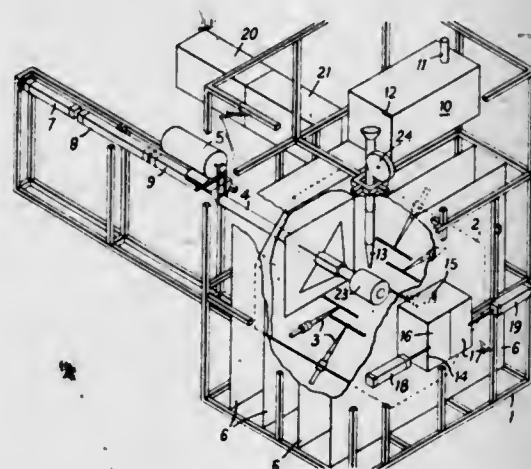
Stanley Richard Barker, Gravesend, and Frank Philip Packman, Canterbury, England, assignors to British Uralite Limited

Filed Oct. 18, 1967, Ser. No. 676,122

Claims priority, application Great Britain, Oct. 24, 1966, 47,703/66

Int. Cl. B06b 1/02; B29f 5/00

U.S. Cl. 264—24 23 Claims



In the manufacture of articles from fibrous materials and a binder therefor in particulate form, an electrostatic charge is imparted to the fibres and binder particles which are attracted to and collected on a former or mould which is earthed or charged with a polarity opposite to that of the charged particles to form a layer of the required shape and thickness. The layer is treated to cause the fibres to bond together to form a self-supporting article before the resultant article is removed from the former, in those cases where removal takes

place. In some cases the former may itself form part of the article. The method of the invention is particularly suitable for the manufacture of articles from asbestos and portland cement and from asbestos and bitumen, but other fibres and binders may also be used.

3,576,929

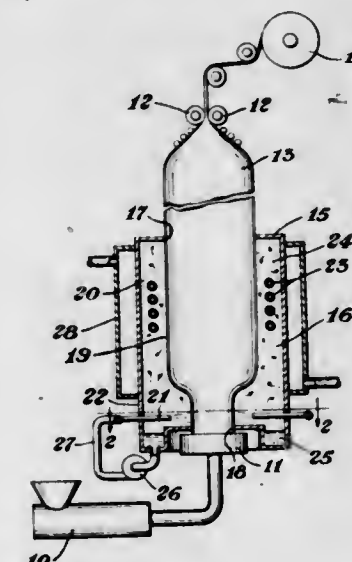
METHOD FOR COOLING BLOWN POLYMER FILMS

Robert Burton Turner, Lake Jackson, Tex., and Emilio Lawrence Poli, Midland, Mich., assignors to The Dow Chemical Company, Midland, Mich.

Filed June 21, 1968, Ser. No. 738,884

Int. Cl. B29c 17/00, 23/00, 25/00

U.S. Cl. 264—37 6 Claims



This invention relates to the cooling of blown polymer film by spraying a relatively low boiling point liquid onto the film, thereby causing cooling and solidification of the heat plastified polymer. The vaporized liquid coolant is condensed on the exterior wall of a cooling chamber which surrounds the blown film and the condensate is collected and re-cycled.

3,576,930

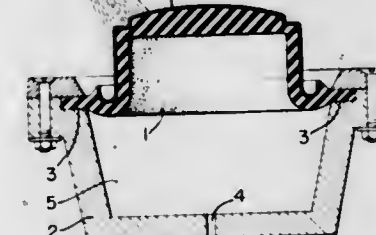
METHOD OF PREPARING MOLDED ARTICLES

Larry H. Watters, Akron, Ohio, and John G. Huber, Nashville, Tenn., assignors to The Goodyear Tire & Rubber Company, Akron, Ohio

Continuation of application Ser. No. 694,587, Dec. 29, 1967. This application Apr. 20, 1970, Ser. No. 28,253

Int. Cl. B29c 13/04; B29d 27/00

U.S. Cl. 264—45 9 Claims



A method of preparing molded articles comprising forming a molded article on the exposed surface of a flexible mold member where the said flexible mold member is attached to a rigid support member, applying a fluid pressure between the flexible mold member and the rigid support member to actuate the flexible mold member away from the rigid support member, thereby defining an enclosed cavity therebetween, and removing the said molded article from the flexible mold member.

3,576,931

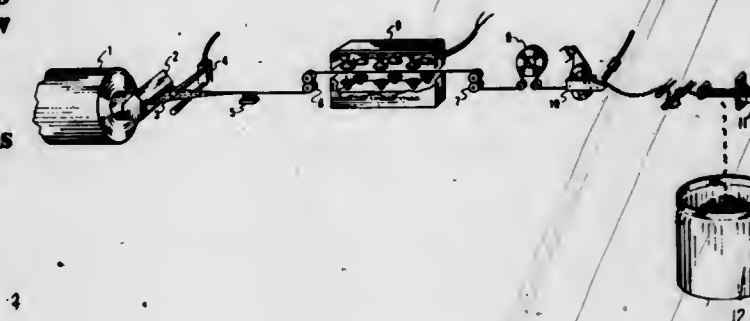
PROCESS FOR PRODUCING FIBRILLATED STAPLE FIBERS

Sohinder Nath Chopra and Hilaire Marcel Turmel, Drummondville, Quebec, Canada, assignors to Celanese Corporation, New York, N.Y.

Filed July 3, 1967, Ser. No. 650,948

Int. Cl. B29h 7/20; D01d 5/12

U.S. Cl. 264—51 5 Claims



A process for the preparation of staple fibers and the product produced thereby, the process involving extruding a mixture of molten polymer and foaming agent which is or evolves gas at extrusion temperature, hot-melt drawing the extrudate at temperatures above the polymer's glass transition temperature to produce fibrillation and cutting the fibrous network into bundles of staple fibers characterized by cross-sections which are substantially free of trapezoidal configurations.

3,576,932

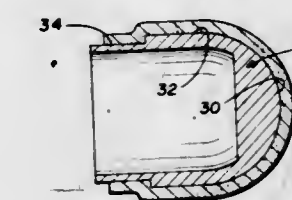
SINTERING VAPOR DEPOSITED SILICA ON A MANDREL DESIGNED TO REDUCE SHRINKAGE

Rulon Bruce Biddulph, Dallas, Tex., assignor to Texas Instruments Incorporated, Dallas, Tex.

Filed Feb. 17, 1969, Ser. No. 799,891

Int. Cl. C04b 33/32, 35/14, 35/64

U.S. Cl. 264—57 5 Claims



A process for manufacturing fused silica articles in which silicon dioxide is deposited and vitrified on the same mandrel. Silicon dioxide formed by vapor phase hydrolysis of silicon tetrachloride is deposited on a cylindrical graphite mandrel having reduced diameter portions at one or at each of its ends while the mandrel is at an elevated temperature. The "green" silica article thus formed is then densified on the same mandrel by heat treatment in a vacuum furnace. Interengagement of the silica and the reduced diameter portions of the mandrel prevents shrinkage of the article during heat treatment.

3,576,933

CROSS-LINKING PROCESS

Robert Frederick Bates and John Scanlan, Runcorn, England, assignors to Imperial Chemical Industries Limited, London, England

No Drawing. Filed May 2, 1969, Ser. No. 821,450
Claims priority, application Great Britain, May 15, 1968, 23,171/68

Int. Cl. B29c 25/00

U.S. Cl. 264—94 12 Claims

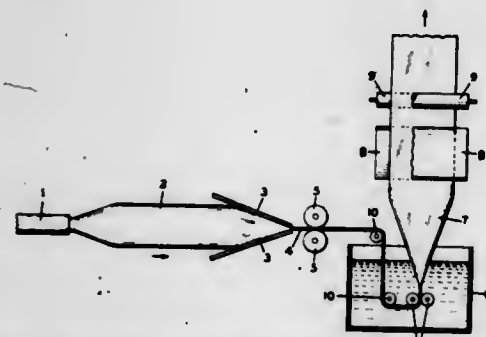
A process for the preparation of a shaped article of a cross-linked polymeric material by subjecting a shaped

article of a crystalline polymer, particularly a crystalline polyolefin, containing a thermally activatable cross-linking agent particularly a free-radical generator, to a pressure sufficient to cause a rise of at least 10° C. in the crystalline melting point of the polymer and heating the shaped article while subjected to the pressure to a temperature which is below the crystalline melting point of the polymer at the said pressure and at which cross-linking will occur.

3,576,934
TREATMENT OF POLYMERIC MATERIALS
Giordano Vaghi, Milan, Italy, assignor to Allied Chemical Corporation, New York, N.Y.
Filed Dec. 26, 1968, Ser. No. 787,010
Int. Cl. B29d 7/24

U.S. Cl. 264—95

3 Claims

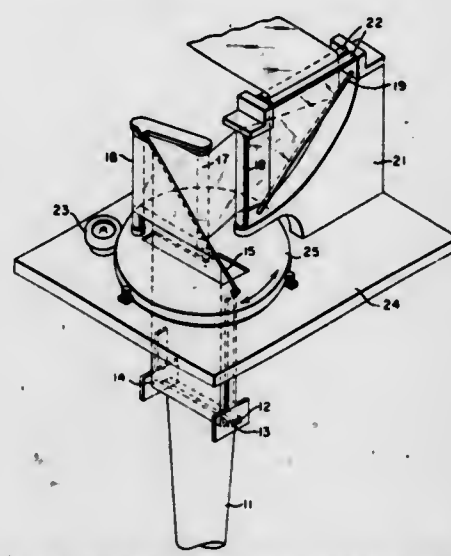


Biaxially oriented tubular films, having a uniform thickness and orientation, are prepared by a novel process wherein two pairs of driven draw nip rollers, positioned at right angles and in different planes with respect to each other, are used to effect a longitudinal stretch, while simultaneously expanding the film diameter to effect a transverse orientation and additional longitudinal orientation.

3,576,935
APPARATUS FOR AND METHOD OF GAUGE DISTRIBUTION IN PLASTIC TUBING
Gerald Benjamin Dyer, Kingston, Ontario, and Peter H. Gray, Reddendale, Ontario, Canada, assignors to E. I. du Pont de Nemours and Company, Wilmington, Del.
Filed May 20, 1969, Ser. No. 826,153
Int. Cl. B29d 7/24

U.S. Cl. 264—95

6 Claims



Method of producing thermoplastic film including the steps of extruding thermoplastic material from an annular die in the form of a tube; transporting the tube in a first direction away from the annular die; flattening the tube by passing it between a pair of nip rolls; changing the path of travel of the flattened tube from the first direction to a direction of 90° to the first direction; turning the flattened tube about a line which is coaxial with the annular die, the nip rolls being oscillated relative to the annular die; and, passing the flattened tube into contact with a takeoff roll which is fixed relative to the annular die, the distance between the takeoff roll and the line about which the flattened tube is turned remaining constant during the oscillating motion. Apparatus is provided for performing the above method.

DESIGNS

APRIL 27, 1971

220,560
BOTTLE

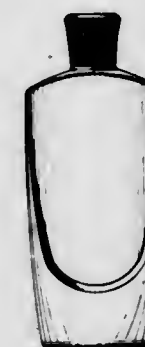
James H. Johnson, Princeton, N.J., assignor to Johnson & Johnson
Filed Jan. 30, 1970, Ser. No. 21,171
Term of patent 14 years
Int. Cl. D9—01

U.S. Cl. D9—118



220,561
BOTTLE OR SIMILAR ARTICLE
Duane J. Quintal, Quezon City, Philippines, assignor to Colgate-Palmolive Company, New York, N.Y.
Filed Mar. 23, 1970, Ser. No. 22,011
Claims priority, application Philippines Sept. 25, 1969
Term of patent 14 years
Int. Cl. D9—01

U.S. Cl. D9—144



220,562
BOTTLE OR SIMILAR ARTICLE
Duane J. Quintal, Quezon City, Philippines, assignor to Colgate-Palmolive Company, New York, N.Y.
Filed Mar. 23, 1970, Ser. No. 22,012
Claims priority, application Philippines Sept. 25, 1969
Term of patent 14 years
Int. Cl. D9—01

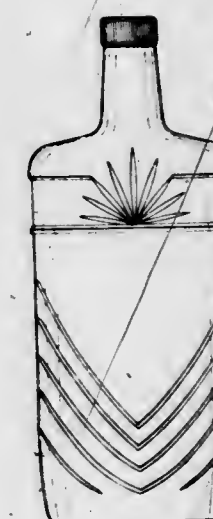
U.S. Cl. D9—156



220,563
BOTTLE

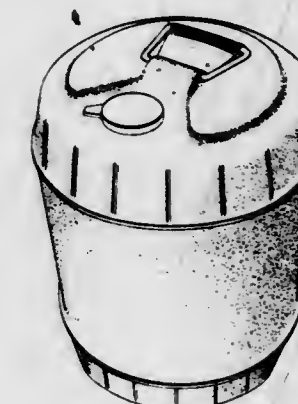
Franklin Douglas Northgrave, Arva, Ontario, Canada, assignor to London Winery Limited, London, Ontario, Canada
Filed Nov. 17, 1969, Ser. No. 20,155
Term of patent 14 years
Int. Cl. D9—01

U.S. Cl. D9—168



220,564
TIGHT HEAD CONTAINER
Clara Virginia Eicholtz, Midland, and Bertrand N. Trombley, Bloomfield Hills, Mich., assignors to Rheem Manufacturing Company, New York, N.Y.
Filed Oct. 23, 1969, Ser. No. 19,680
Term of patent 14 years
Int. Cl. D9—07

U.S. Cl. D9—175

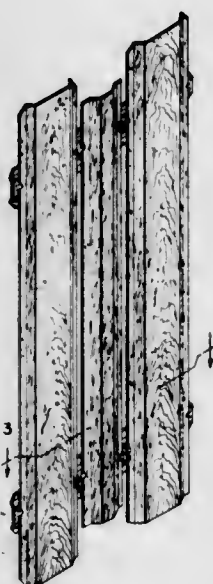


**220,565
SHUTTER**

Raymond W. Sickler, R.D. 2, Wellsburg, N.Y. 14894
Filed Dec. 5, 1969, Ser. No. 20,372

Term of patent 7 years
Int. Cl. D25-02

U.S. Cl. D13-1

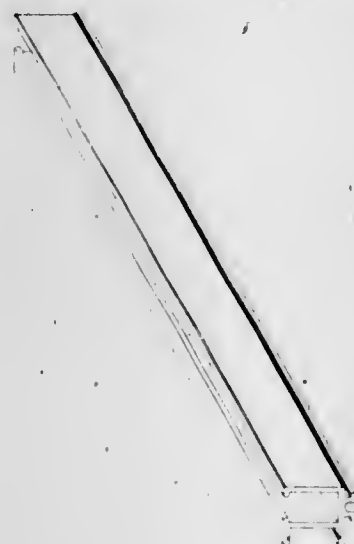
**220,566****MOULDING FOR A BUILDING DIRECTORY UNIT**

Stanley E. Weeks, 4650 Grosvenor Ave.,
Montreal, Quebec, Canada

Filed Sept. 22, 1969, Ser. No. 19,246

Term of patent 14 years
Int. Cl. D25-03

U.S. Cl. D13-6

**220,567****MOTORCAR**

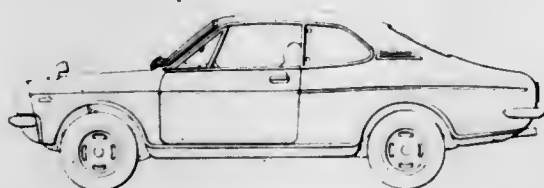
Norimoto Otsuka, Tokyo, and Shinya Iwakura, Yamato-
machi, Kitaadachi-gun, Japan, assignors to Honda
Giken Kogyo Kabushiki Kaisha, Tokyo, Japan

Filed Feb. 18, 1970, Ser. No. 21,498

Claims priority, application Japan Aug. 18, 1969

Term of patent 14 years
Int. Cl. D12-08

U.S. Cl. D14-3

**220,568
PLUG-IN SWITCH-CONTROLLED MULTIPLE
OUTLET**

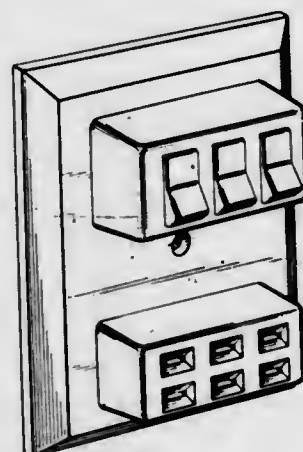
Ward A. Young, 341 Old Fort Road,
King of Prussia, Pa. 19406

Filed Mar. 11, 1970, Ser. No. 21,852

Term of patent 14 years

Int. Cl. D13-03

U.S. Cl. D26-1

**220,569****TERMINAL BLOCK**

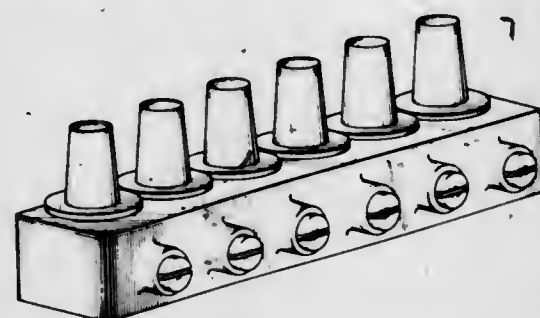
David J. De Carlo, Belleville, N.J., assignor to Thomas &
Betts Corporation, Elizabeth, N.J.

Filed Jan. 7, 1970, Ser. No. 20,799

Term of patent 14 years

Int. Cl. D13-03

U.S. Cl. D26-1

**220,570****PLAQUE OR SIMILAR ARTICLE**

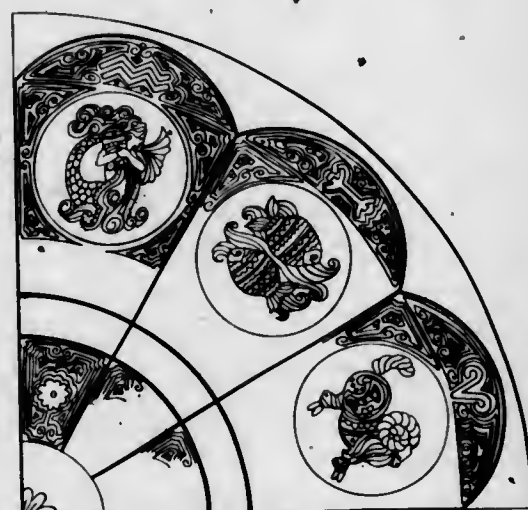
Robin C. Houston, Pittsfield, Mass., assignor to
Textron Inc., Pittsfield, Mass.

Filed Apr. 1, 1970, Ser. No. 22,163

Term of patent 14 years

Int. Cl. D11-99

U.S. Cl. D29-23

**220,571****ANIMAL EXERCISER**

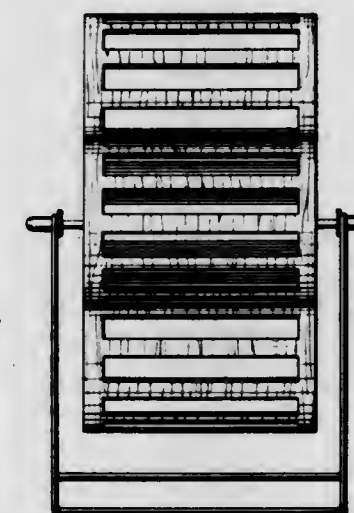
Samuel Rosenberg, Brooklyn, N.Y., assignor to Excelsior
Pet Products, Inc., Brooklyn, N.Y.

Filed Oct. 3, 1969, Ser. No. 19,405

Term of patent 14 years

Int. Cl. D30-99

U.S. Cl. D30-42

**220,572****ANIMAL EXERCISER**

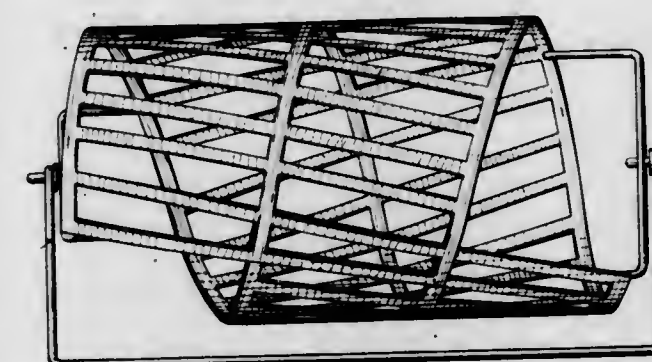
Samuel Rosenberg, Brooklyn, N.Y., assignor to Excelsior
Pet Products, Inc., Brooklyn, N.Y.

Filed Oct. 13, 1969, Ser. No. 19,528

Term of patent 14 years

Int. Cl. D30-99

U.S. Cl. D30-42

**220,573****CABINET FOR A COIN-CONTROLLED
SLOT MACHINE**

Paul Belokin, Jr., Berwyn, Ill., assignor to Bally
Manufacturing Corporation, Chicago, Ill.

Filed Feb. 2, 1970, Ser. No. 21,217

Term of patent 14 years

Int. Cl. D21-04

U.S. Cl. D34-5

**220,574****MODEL RACING CAR**

Eric Harrison Broadley, Flackwell Heath, England,
assignor to Lola Cars Limited, Slough, England

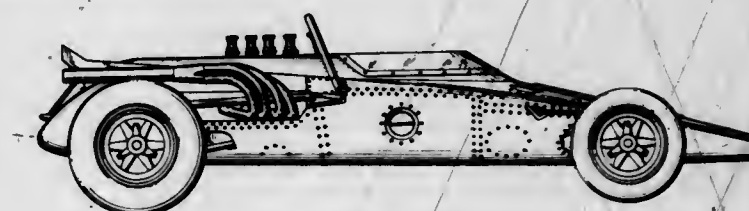
Filed July 10, 1969, Ser. No. 18,168

Claims priority, application Great Britain Jan. 10, 1969

Term of patent 7 years

Int. Cl. D21-02

U.S. Cl. D34-15

**220,575****DECK OF PLAYING CARDS**

Roger Poitras and Roland Poitras, both of 4983 Rosemont
Blvd., Montreal, Quebec, Canada

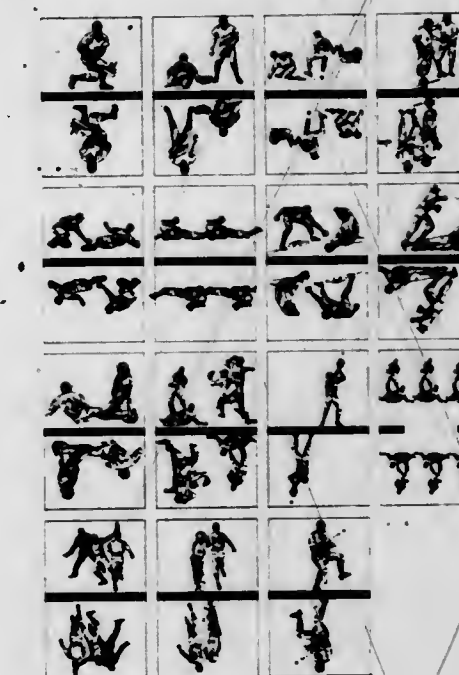
Filed Sept. 22, 1969, Ser. No. 19,231

Claims priority, application Canada May 15, 1969

Term of patent 14 years

Int. Cl. D21-04

U.S. Cl. D34-13

**220,576****TOY AIRPLANE**

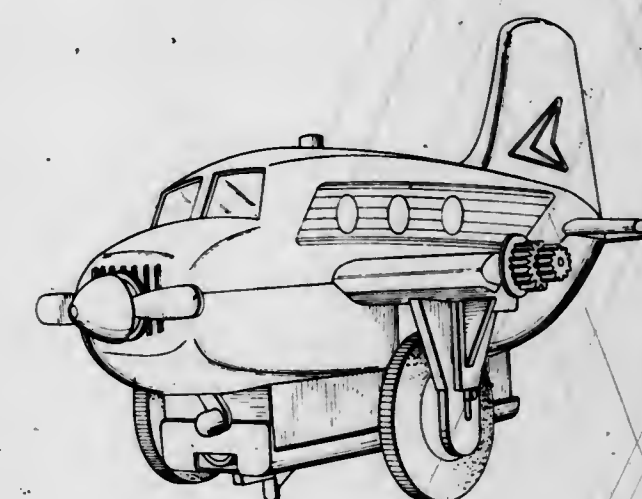
Toshikatsu Arai, Tokyo, Japan, assignor to Tomy
Kogyo Co., Ltd., Tokyo, Japan

Filed June 4, 1970, Ser. No. 23,316

Term of patent 14 years

Int. Cl. D21-02

U.S. Cl. D34-15



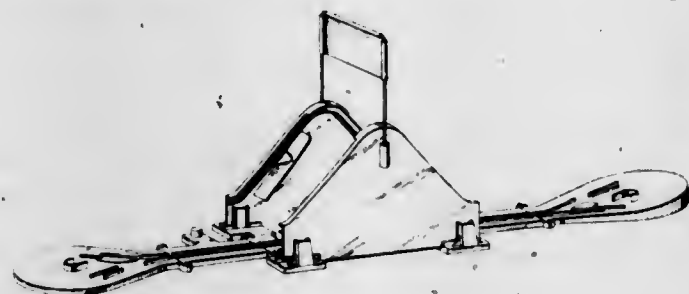
220,577

TOY TRACKWAY

Toshikatsu Arai, Tokyo, Japan, assignor to Tomy Kogyo Co., Ltd., Katsushika-ku, Tokyo, Japan
Filed June 4, 1970, Ser. No. 23,317

Term of patent 14 years
Int. Cl. D21-02

U.S. Cl. D34-15



220,578

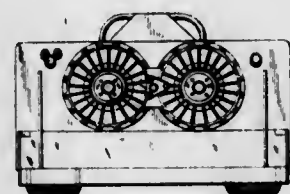
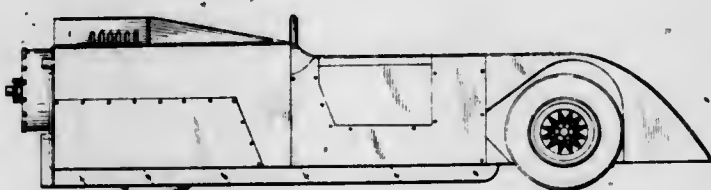
MODEL RACING CAR

James E. Hall, Chaparral Cars, Inc., Rte. 1, Box 62, Midland, Tex. 79701

Filed June 19, 1970, Ser. No. 23,578

Term of patent 7 years
Int. Cl. D21-01

U.S. Cl. D34-15



220,579

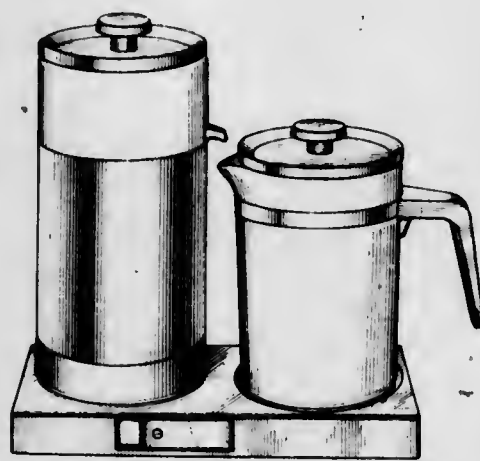
BEVERAGE MAKER

Chester H. Wickenburg, 1125 Forest Drive, Elgin, Ill. 60120, and George B. Jensen, 1430 Astor St., Chicago, Ill. 60610

Filed Mar. 11, 1970, Ser. No. 21,851

Term of patent 14 years
Int. Cl. D7-04

U.S. Cl. D44-26



220,580

LIGHTING FIXTURE

Stig Åke Artur Edenberg, Stensovagen 9C, Kalmar, Sweden

Filed Jan. 8, 1970, Ser. No. 20,809

Term of patent 14 years
Int. Cl. D26-02

U.S. Cl. D48-4



220,581

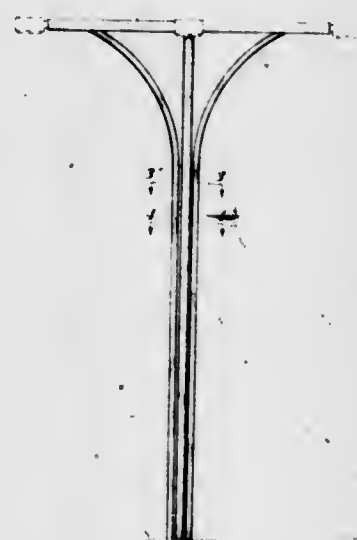
LIGHT STANDARD OR SIMILAR ARTICLE

Robert W. Selden, Seattle, Wash., assignor to Weyerhaeuser Company, Tacoma, Wash.

Filed Oct. 20, 1969, Ser. No. 19,630

Term of patent 14 years
Int. Cl. D26-03

U.S. Cl. D48-31



220,582

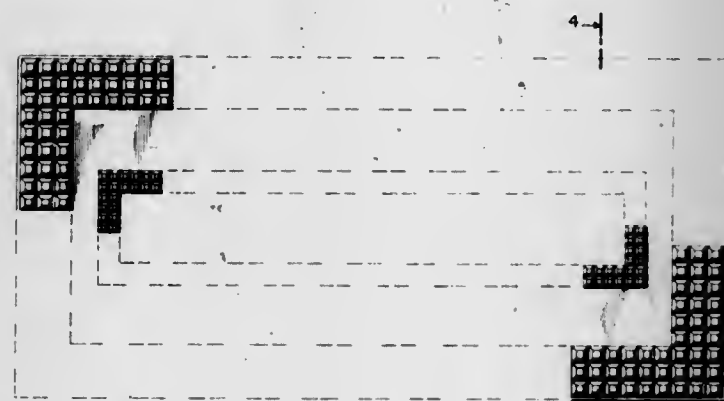
TOP PANEL FOR A TISSUE BOX

Victor Trivillino, Elmhurst, N.Y., assignor to Kleinert's Inc., College Point, N.Y.

Filed Nov. 17, 1969, Ser. No. 20,127

Term of patent 14 years
Int. Cl. D9-04

U.S. Cl. D52-2



220,583

FOOTWEAR GAUGE

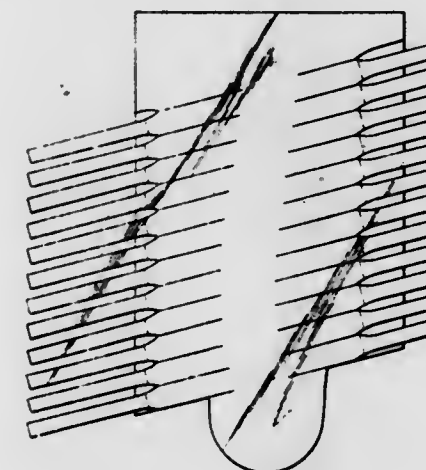
Kenneth Walter Hall, Wellingborough, England, assignor to Tebbutt & Hall Bros. Limited, Raunds, Wellingborough, England

Filed Aug. 8, 1969, Ser. No. 18,586

Claims priority, application Great Britain Mar. 25, 1969

Term of patent 14 years
Int. Cl. D10-08

U.S. Cl. D52-6



220,584

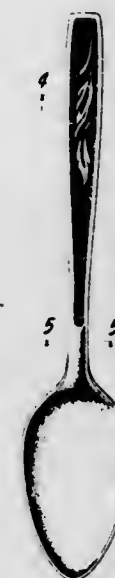
SPOON OR SIMILAR ARTICLE

Ellen B. Manderfield, 306 N. McBride St., Syracuse, N.Y. 13203

Filed July 7, 1970, Ser. No. 23,853

Term of patent 14 years
Int. Cl. D7-03

U.S. Cl. D54-12



220,585

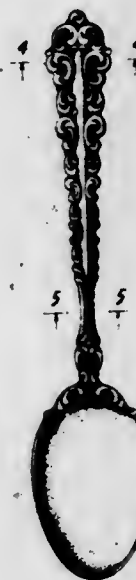
SPOON OR SIMILAR ARTICLE

Ellen B. Manderfield, 306 N. McBride St., Syracuse, N.Y. 13203

Filed July 7, 1970, Ser. No. 23,854

Term of patent 14 years
Int. Cl. D7-03

U.S. Cl. D54-12



220,586

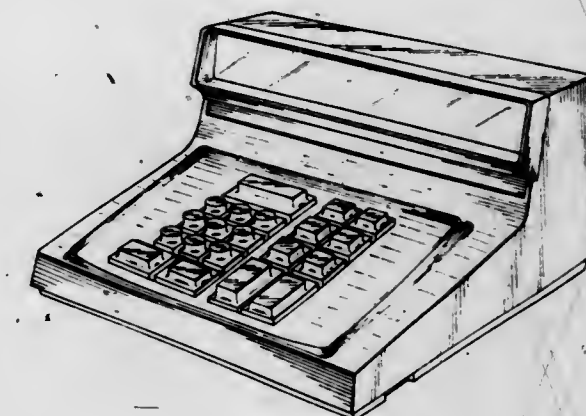
CALCULATING MACHINE

James H. Frakes, Jr., Manlius, and Chester J. Abend, Camillus, N.Y., assignors to SCM Corporation, New York, N.Y.

Filed Sept. 24, 1969, Ser. No. 19,289

Term of patent 14 years
Int. Cl. D18-01

U.S. Cl. D64-11



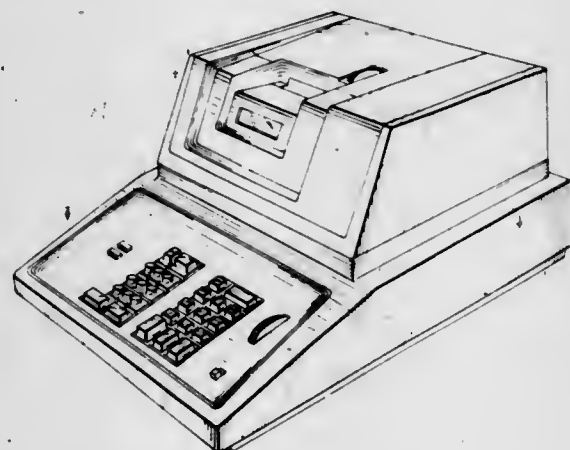
220,587

CALCULATING MACHINE

Robert S. Metzner, Syracuse, and Chester J. Abend, Camillus, N.Y., assignors to SCM Corporation, New York, N.Y.

Filed Sept. 29, 1969, Ser. No. 19,327
Term of patent 14 years
Int. Cl. D18—01

U.S. Cl. D64—11



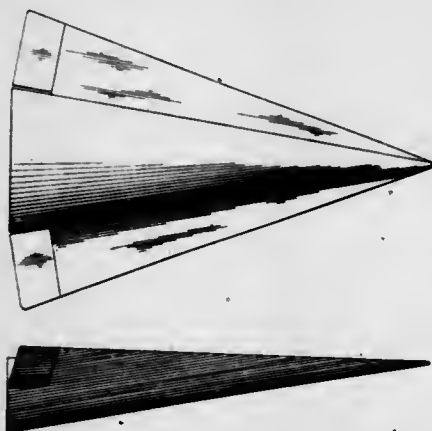
220,588

LIFTING BODY

William T. Holmes, Lancaster, Calif., assignor to the United States of America as represented by the Administrator of the National Aeronautics and Space Administration

Filed Feb. 4, 1970, Ser. No. 21,263
Term of patent 14 years
Int. Cl. D12—07

U.S. Cl. D71—1



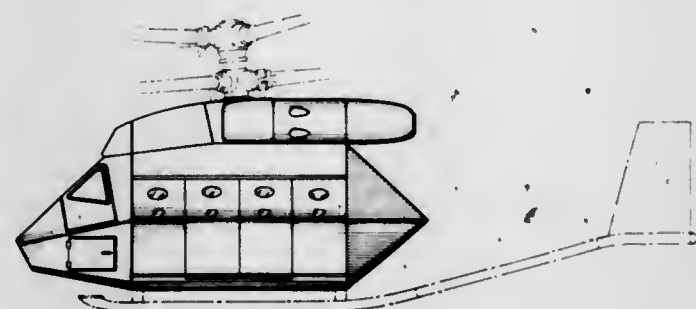
220,589

AIRCRAFT

Bernard G. Richtelli, Huntington, Conn., assignor to United Aircraft Corporation, East Hartford, Conn.

Filed Jan. 7, 1970, Ser. No. 21,064
Term of patent 14 years
Int. Cl. D12—07

U.S. Cl. D71—1



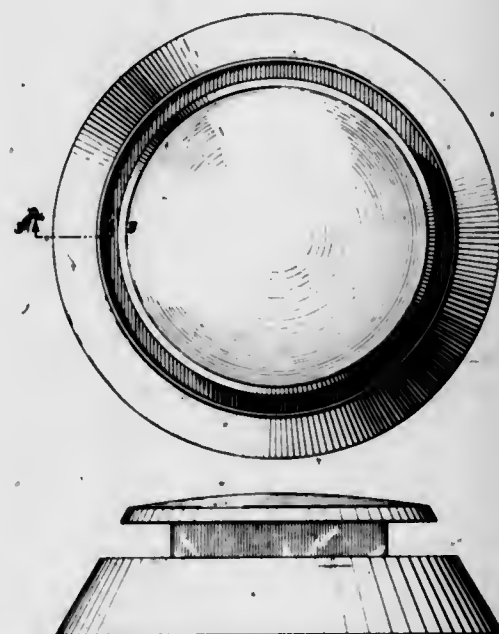
220,590

COMBUSTION PRODUCTS DETECTOR

Norbert Thomas Wolfe, Minneapolis, Minn., assignor to Honeywell Inc., Minneapolis, Minn.

Filed Oct. 15, 1969, Ser. No. 19,561
Term of patent 14 years
Int. Cl. D29—01

U.S. Cl. D72—1



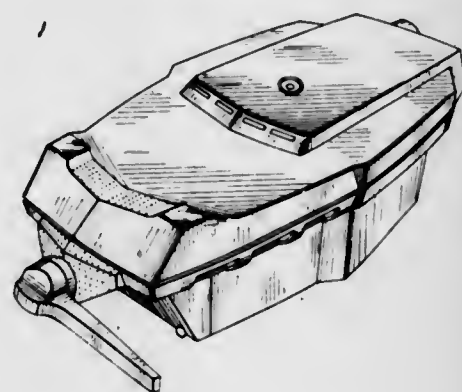
220,591

HOUSING FOR ENGINE

Rustan Lange, Jonkoping, Sweden, assignor to Kendale Industries, Inc., Independence, Ohio

Filed Aug. 27, 1969, Ser. No. 18,884
Term of patent 14 years
Int. Cl. D15—01

U.S. Cl. D77—1



220,592

DISPLAY STAND

Fred Howard, 29 E. 64th St., New York, N.Y. 10021; Roger G. Ferriter, 75 Winnebago Road, Yonkers, N.Y. 10710; and David E. Harrold, 410 Burkridge Court, Winston-Salem, N.C. 27104

Filed Mar. 6, 1970, Ser. No. 21,766
Term of patent 14 years
Int. Cl. D6—01

U.S. Cl. D80—9

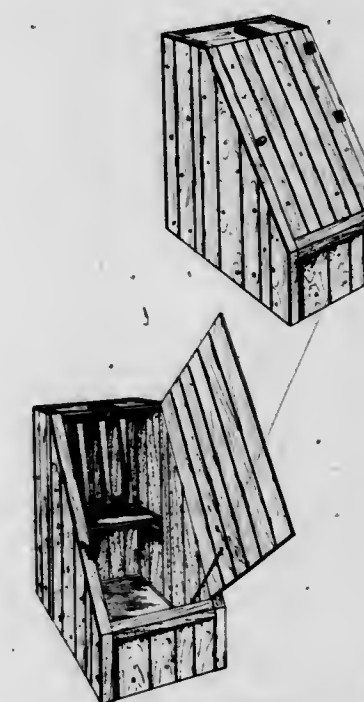


220,594

SAUNA CABINET

John W. Kent, 4886 Marlette SE., Grand Rapids, Mich. 49508
Filed Sept. 16, 1968, Ser. No. 13,555
Term of patent 14 years
Int. Cl. D24—99

U.S. Cl. D83—1



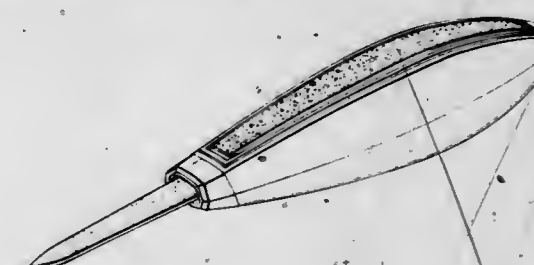
220,595

ELECTRIC MANICURING INSTRUMENT

Edward A. Irelan, Lombard, Ill., assignor to Sunbeam Corporation, Chicago, Ill.

Filed Jan. 23, 1970, Ser. No. 21,056
Term of patent 14 years
Int. Cl. D28—03

U.S. Cl. D86—10



220,593

CERVICAL SCRAPER

Michael S. Burnhill, Brooklyn, N.Y., assignor to American Caduceus Industries Inc., New York, N.Y.

Filed Aug. 3, 1970, Ser. No. 24,264
Term of patent 14 years
Int. Cl. D24—03

U.S. Cl. D83—12



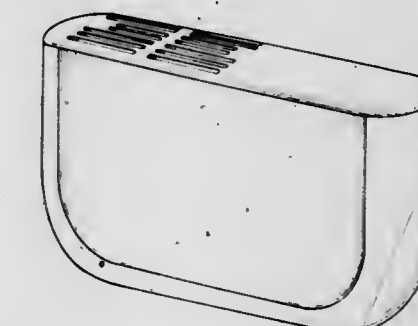
220,596

HAIR DRYER

Dieter Rams, Königstein im Taunus, Germany, assignor to Braun Aktiengesellschaft, Frankfurt am Main, Germany

Filed Sept. 11, 1969, Ser. No. 19,105
Claims priority, application Germany Mar. 14, 1969
The portion of the term of the patent subsequent to Aug. 25, 1984, has been disclaimed
Term of patent 14 years
Int. Cl. D28—03

U.S. Cl. D86—10

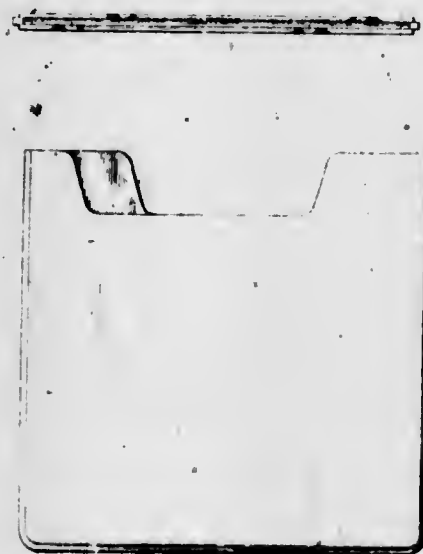


220,597

MAGNETIC DISK CARTRIDGE JACKET

Clifford I. Dawson and Dallas G. Molerin, San Jose, Calif., assignors to International Business Machines Corporation, Armonk, N.Y.
 Filed Nov. 10, 1969, Ser. No. 20,018
 Term of patent 14 years
 Int. Cl. D3—99; D14—99

U.S. Cl. D87—1



220,598

FOOD CHOPPER

Albert Meszaros, 24 Eastern Ave., Ossining, N.Y. 10562
 Filed June 10, 1970, Ser. No. 23,424
 Term of patent 14 years
 Int. Cl. D7—05

U.S. Cl. D89—1

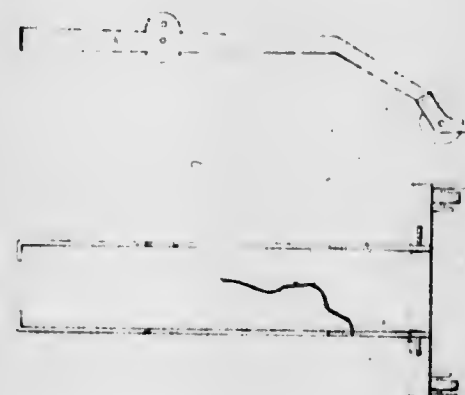


220,599

ACCESSORY FOR BICYCLE REARING ACTIONS

Harold Hasselbusch, 144—21 68th Drive, Flushing, N.Y. 11367
 Filed Feb. 20, 1970, Ser. No. 21,542
 Term of patent 14 years
 Int. Cl. D12—14

U.S. Cl. D90—1

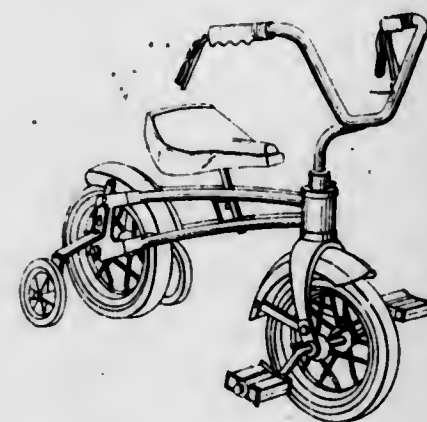


220,600

FRONT WHEEL DRIVE SIDEWALK BICYCLE

Loran R. Hill, Olney, Ill., assignor to American Machine & Foundry Company
 Filed Sept. 17, 1969, Ser. No. 19,194
 Term of patent 14 years
 Int. Cl. D12—11

U.S. Cl. D90—8



220,601

TIRE

Gilbert Joseph Hoke, Kenmore, N.Y., assignor to Dunlop Tire and Rubber Corporation, Buffalo, N.Y.
 Filed Jan. 30, 1970, Ser. No. 21,158
 Term of patent 14 years
 Int. Cl. D12—14

U.S. Cl. D90—20



220,602

PNEUMATIC TIRE

James F. Newman, St. Clair Shores, Mich., assignor to Uniroyal, Inc., New York, N.Y.
 Filed Jan. 29, 1970, Ser. No. 21,142
 Term of patent 14 years
 Int. Cl. D12—14

U.S. Cl. D90—20

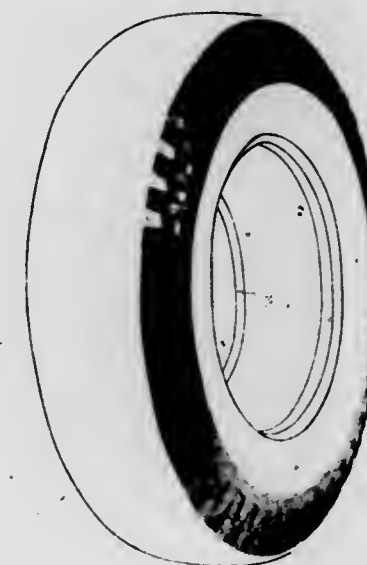


220,603

TIRE

Harold D. Fetty, Birmingham, Mich., assignor to The Goodyear Tire & Rubber Company, Akron, Ohio
 Filed June 15, 1970, Ser. No. 23,503
 Term of patent 14 years
 Int. Cl. D12—14

U.S. Cl. D90—20



220,605

TIRE

Gilbert Joseph Hoke, Kenmore, N.Y., assignor to Dunlop Tire and Rubber Corporation, Buffalo, N.Y.
 Filed May 14, 1970, Ser. No. 22,968
 Term of patent 14 years
 Int. Cl. D12—14

U.S. Cl. D90—20

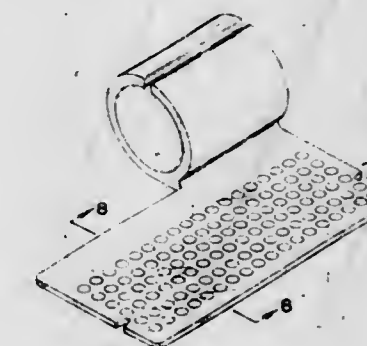


220,606

INFORMATION PLATE FOR A TEST TUBE OR THE LIKE

Roger V. Larson, Murray, Utah, assignor to Bio-Logics, Inc., Salt Lake City, Utah
 Filed Aug. 8, 1969, Ser. No. 18,605
 Term of patent 14 years
 Int. Cl. D20—99

U.S. Cl. D96—13

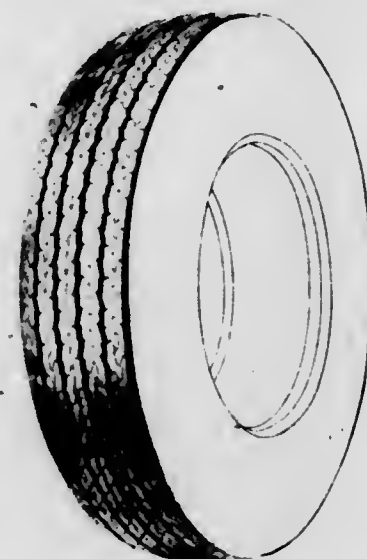


220,604

TIRE

Harold D. Fetty, Birmingham, Mich., assignor to The Goodyear Tire & Rubber Company, Akron, Ohio
 Filed June 15, 1970, Ser. No. 23,500
 Term of patent 14 years
 Int. Cl. D12—14

U.S. Cl. D90—20

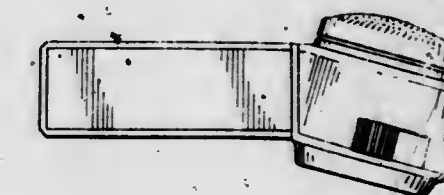


220,607

ELECTRIC SHAVER

Taiseke Ono, Hiroyuki Nishimura, and Yoritaka Ikejima, Kadoma-shi, Osaka, Japan, assignors to Matsushita Electric Works, Ltd., Osaka, Japan
 Filed Sept. 19, 1969, Ser. No. 19,214
 Claims priority, application Japan Mar. 19, 1969; Apr. 22, 1969
 Term of patent 14 years
 Int. Cl. D28—03

U.S. Cl. D95—3



LIST OF PATENTEEES

TO WHOM

PATENTS WERE ISSUED ON THE 27TH DAY OF APRIL, 1971

NOTE.—Arranged in accordance with the first significant character or word of the name (in accordance with city and telephone directory practice).

- AB Gustavsbergs Fabriker: See—
Juhlin, Sven-Eric; and Wahlforss, Henrik Carl Wilhelm, 3,576,343.
- Abbott Laboratories: See—
Crites, Nelson A., 3,576,129.
- Abendroth, Werner, to Still, Carl, Firma. Extensible coal bunker construction. 3,576,263, Cl. 214-35.
- Abitibi Paper Company, Ltd.: See—
Baldwin, Stanley H., 3,576,711.
- Abramson, Jay J.; and Rosser, Allan B., to Ford Motor Company. Continuous mixing of battery paste. 3,576,675, Cl. 136-27.
- Acheson, Willard P.; Gardner, Gerald H. F.; Messmer, Joseph H.; and Torcaso, Michael A., to Gulf Research & Development Company. Hydraulic jet drill bit. 3,576,222, Cl. 175-67.
- Adams, Raymond K.; and Hutton, John T., to United States of America, Atomic Energy Commission. Analytical photometer-to-digital computer inter-facing system for real time data reduction. 3,576,441, Cl. 250-218.
- Adams, Robert E., to Gifford-Wood, Inc. Machine for cutting ice blocks. 3,576,146, Cl. 83-408.
- Addison Products Company: See—
Sharp, Richard F.; and Betz, John W., 3,576,114.
- Addressograph-Multigraph Corporation: See—
Zaccard, Edward F.; Rabb, Lester R.; and Mathisen, Henry A., 3,576,431.
- Admiral Corporation: See—
Shukla, Padmanabh J., 3,576,463.
- Aerospace Research, Inc.: See—
Galvin, Aaron A., 3,576,564.
- Agfa-Gevaert Aktiengesellschaft: See—
Kuhn, Gerhard; Zahn, Wolfgang; and Knapp, Walter, 3,576,370.
Mayr, Helmut; Pette, Richard; and Huber, Theodor, 3,576,362.
Theer, Anton, 3,576,363.
Wick, Richard; Kohler, Roland; and Schneider, Othmar, 3,576,369.
- Aiken Industries, Inc.: See—
Gehres, David W., 3,576,608.
- Air Reduction Company, Incorporated: See—
Russell, James P., 3,576,884.
- Aitken, Leon L., to Western Gear Corporation. Centrifugally controlled power roller for conveyor system. 3,576,250, Cl. 198-127.
- Ajinomoto Co., Inc.: See—
Mizoguchi, Naomasa; Takeshiro, Tadashi; and Ito, Kenkichi, 3,576,858.
- Akasaka, Shigeo, to Nippon Kogaku K.K. Device for optical and magnetic sound track on film reproduction. 3,576,404, Cl. 179-100.1
- Aktiengesellschaft Brown, Boveri & Cie: See—
Sakic, Boris, 3,576,562.
- Aladdin Industries, Incorporated: See—
Marshall, John F., III, 3,576,472.
- Alaska Peclers, Inc.: See—
Willis, John C., 3,576,047.
- Albert, Harry Elmer; and Haines, Paul Gordon, to Pennwalt Corporation. Nitro-N,N-dialkyl aniline-N-oxides. 3,576,877, Cl. 260-577.
- Alburn, Harvey E.: See—
Dvonch, William; and Alburn, Harvey E., 3,576,855.
- Aldrich, Ralph E., to Itek Corporation. Interferometric readout of electric fields. 3,576,547, Cl. 340-173.
- Alfrey, Turner, Jr.: See—
Schrenk, Walter J.; Chisholm, Douglas S.; Cleereman, Kenneth J.; and Alfrey, Turner, Jr., 3,576,707.
- Allais, Andre; and Paturet, Michel, to Roussel Uclaf. Chloramphenicol phosphates and process of preparation. 3,576,921, Cl. 260-944.
- Allied Chemical Corporation: See—
Anderson, Lowell Ray; and Fox, William B., 3,576,837.
Anello, Louis G.; and Sweeney, Richard F., 3,576,885.
Lichstein, Bernard M.; and Woolf, Cyril, 3,576,888.
Vaghi, Giordano, 3,576,934.
Willson, John C., 3,576,588.
- Allied Pacific Manufacturing Company: See—
Newton, Thomas D., 3,576,310.
- Allis-Chalmers Manufacturing Company: See—
Bliemeister, Robert M.; Hansen, Ellis P.; and Lohman, David P., 3,576,080.
Gedemer, Fred J.; and Loughran, Lee R., 3,576,715.
Reynolds, George E.; Gedemer, Fred J.; and Loughran, Lee R., 3,576,716.
Tanke, Willard H., 3,576,216.
West, Floyd G., 3,576,102.
- Alps Electric Company, Limited: See—
Yoshizato, Akiyuki, 3,576,495.
- Altmann, Conrad; and Sick, Milton W. Mechanism for dispensing toner in electrographic apparatus. 3,576,280, Cl. 222-363.
- Aluminum Company of America: See—
Dell, Manuel Benjamin, 3,576,700.
- Alwood, Melvin G. Method and apparatus for making coffee. 3,576,646, Cl. 99-71.
- American Air Filter Company, Inc.: See—
Rivers, Richard D., 3,576,095.
Rivers, Richard D., 3,576,096.
- American Cyanamid Company: See—
Cantrall, Margot Louise; Sassiver, Martin Leon; and Shepherd, Robert Gordon, 3,576,805.
Hoffman, Joseph Adrian, 3,576,806.
- American Hoist & Derrick Company: See—
Wright, Colin S., 3,576,161.
- American Home Products Corporation: See—
Dvonch, William; and Alburn, Harvey E., 3,576,855.
Hughes, Gordon A.; Jen, Timothy Y.; and Smith, Herchel, 3,576,887.
Stein, Reinhardt P.; and Smith, Herchel, 3,576,829.
Wiesner, Karel; and McCluskey, Jarvis G., 3,576,812.
- Amodei, Juan J., to RCA Corporation. Circuit producing output pulse of polarity dependent on relative times of occurrence of input pulses. 3,576,448, Cl. 307-232.
- AMP Incorporated: See—
Frantz, Robert Houston, 3,576,515.
Stauffer, Larry Ronald, 3,576,520.
- Amplex Corporation: See—
Garagnon, Gary Barger, 3,576,496.
- Anderson, Alexander Beveridge; and Bloom, Martin S., to Imperial Chemical Industries Limited. Continuous process for the production of calcium sulphate alpha-hemihydrate from gypsum. 3,576,599, Cl. 23-122.
- Anderson, Jerrold L.: See—
Powell, Thomas C.; and Anderson, Jerrold L., 3,576,759.
- Anderson, John E.; Parish, Clyde E.; and Ross, George H., to Signal Chemical Company, mesne. Dry alcoholic beverage forming compound. 3,576,644, Cl. 99-30.
- Anderson, Lowell Ray; and Fox, William B., to Allied Chemical Corporation. Process for preparation of bis(trifluoromethyl) trioxide and fluoroformyl trifluoromethyl peroxide. 3,576,837, Cl. 260-453.
- Anderson, William B., Jr. Adjustable gun rest. 3,576,084, Cl. 42-94.
- Andrews, Robert S. L.: See—
Spencer, Robert W.; and Andrews, Robert S. L., 3,576,318.
- Anello, Louis G.; and Sweeney, Richard F., to Allied Chemical Corporation. Terminally unsaturated fluoro-olefins and process for the preparation thereof. 3,576,885, Cl. 260-614.
- Angele, Wilhelm; and Kennedy, Bobby W., to United States of America, National Aeronautics and Space Administration. Method of making shielded flat cable. 3,576,723, Cl. 204-30.
- Angona, Frank A., to Mobil Oil Corporation. Method and apparatus for explosive drilling utilizing spark pumps for detonating explosives. 3,576,219, Cl. 175-4.5
- Annand, Robert R.; Redmore, Derek; and Rushton, Brian M., to Petrolite Corporation. Cyclic amidine polymers as water clarifiers. 3,576,740, Cl. 210-54.
- Anner, Georg; and Wieland, Peter, to Ciba Corporation. $\Delta^{4,9,11}$ -Trienes of the 19-nor-androstene series and process for their manufacture. 3,576,828, Cl. 260-397.3
- Appelbaum, Alfred J.; Cloud, Peter R.; and Parad, Leonard I., to Sylvania Electric Products Inc. Planar radial array with controllable quasi-optical lens. 3,576,579, Cl. 343-778.
- Aqua-Chem, Inc.: See—
Clark, George B.; and Kavanagh, James A., 3,576,688.
- Arca, Rene. Plant receptacle with water supply. 3,576,088, Cl. 47-38.1
- Archambault, Jean-Paul; and Manhardt, John R., to Itek Corporation. Physical development composition and process of using same. 3,576,631, Cl. 96-48.
- Arens Controls Limited: See—
Hemens, James Frederick, 3,576,334.
- Armstrong Cork Company: See—
Gard, George E., 3,576,330.
- Arndt, Richard H.: See—
Tachick, Henry N.; and Arndt, Richard H., 3,576,493.
- Arnold, Bruce K.: See—
Johnson, George S.; Arnold, Bruce K.; and Sugar, Joseph, 3,576,517.
- Arnold, Ronald J. K.; Green, Robert L.; and Smith, Howard M., to British Petroleum Company Limited, The. Detection of knock in internal combustion engines. 3,576,526, Cl. 340-52.

Arrington, William Lee; and Gantt, Robert Dwight, to Sylvania Electric Products, Inc. Integral support and magnetic shielding means for cathode ray tubes. 3,576,395, Cl. 178-7.82.

Arvin Industries, Inc.: See—
Sands, Oran J.; and Smith, Charles W., 3,576,418.

Asahi Kasei Kogyo Kabushiki Kaisha: See—
Kominami, Naoya; Tanaka, Kyugo; and Watanabe, Itaru, 3,576,850.

Ashton, Harold P.: See—
Swett, James B.; and Ashton, Harold P., 3,576,113.

Atanosian, Mgrdich G. Hose winding and storing assembly. 3,576,196, Cl. 137-355.26

Atkins, Robert A.: See—
Wood, Ray A. R.; and Atkins, Robert A., 3,576,192.

Atlantic Richfield Company: See—
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 Zviak, Charles; and Viout, Andre, to Societe Anonyme dite: L'Oreal. Process for permanently pressing textile articles made of keratinic fibers. 3,576,592, Cl. 8-127.6

LIST OF REISSUE PATENTEEES

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53-51 : 3.576.093	100 : 3.576.635	144-3 : 3.576.201	184-15 : 3.576.234	363 : 3.576.278	3.576.505
59 : 3.576.094	3.576.636	3.576.202	188-79.5 : 3.576.235	223-34 : 3.576.281	3.576.506
55-484 : 3.576.095	107 : 3.576.637	146-70.1 : 3.576.204	152 : 3.576.236	224-2 : 3.576.282	3.576.507
504 : 3.576.096	109 : 3.576.638	148-32 : 3.576.681	206 : 3.576.237	226-7 : 3.576.283	3.576.508
56-249 : 3.576.097	130 : 3.576.640	175 : 3.576.682	190-49 : 3.576.238	90 : 3.576.284	3.576.509
295 : 3.576.098	3.576.641	3.576.683	192-3 : 3.576.239	97 : 3.576.285	3.576.510
58-50 : 3.576.099	98-31 : 3.576.157	179 : 3.576.684	16 : 3.576.240	141 : 3.576.286	3.576.511
58 : 3.576.100	99-2 : 3.576.642	187 : 3.576.685	85 : 3.576.241	227-2 : 3.576.287	3.576.512
		3.576.643	151-41.7 : 3.576.205	60 : 3.576.288	3.576.513

CLASSIFICATION OF PATENTS

260-52 : 3,576,788	260-486 : 3,576,850	260-876 : 3,576,910	302-12 : 3,576,349	328-55 : 3,576,496	340-173.1 : 3,576,551
75 : 3,576,790	488 : 3,576,849	3,576,911	303-21 : 3,576,350	109 : 3,576,497	174 : 3,576,552
77.5 : 3,576,789	507 : 3,576,851	880 : 3,576,912	305-35 : 3,576,352	331-14 : 3,576,498	1 : 3,576,553
79.3 : 3,576,791	515 : 3,576,852	884 : 3,576,913	307-12 : 3,576,353	76 : 3,576,499	177 : 3,576,554
80 : 3,576,792	518 : 3,576,853	897 : 3,576,914	106 : 3,576,444	94.5 : 3,576,500	203 : 3,576,555
94.9 : 3,576,794	531 : 3,576,854	923 : 3,576,915	203 : 3,576,445	3,576,501	228 : 3,576,556
117 : 3,576,795	533 : 3,576,855	927 : 3,576,916	217 : 3,576,446	96 : 3,576,503	236 : 3,576,557
145 : 3,576,796	534 : 3,576,856	930 : 3,576,917	221 : 3,576,447	116 : 3,576,504	259 : 3,576,558
239.1 : 3,576,797	535 : 3,576,857	944 : 3,576,918	232 : 3,576,448	333-11 : 3,576,505	324 : 3,576,559
240 : 3,576,798	538 : 3,576,858	956 : 3,576,919	237 : 3,576,449	72 : 3,576,506	347 : 3,576,560
3,576,800	539 : 3,576,859	966 : 3,576,920	243 : 3,576,450	335-152 : 3,576,507	3,576,561
3,576,801	543 : 3,576,860	984 : 3,576,921	268 : 3,576,451	336-165 : 3,576,508	3,576,562
3,576,802	551 : 3,576,861	986 : 3,576,922	311 : 3,576,452	337-8 : 3,576,509	3,576,563
3,576,803	554 : 3,576,862	988 : 3,576,923	308-15 : 3,576,453	338-150 : 3,576,510	3,576,564
3,576,804	558 : 3,576,863	991 : 3,576,924	310-8.2 : 3,576,454	162 : 3,576,511	3,576,565
3,576,805	559 : 3,576,864	994 : 3,576,925	163 : 3,576,455	174 : 3,576,512	3,576,566
3,576,806	561 : 3,576,865	998 : 3,576,926	186 : 3,576,456	180 : 3,576,513	3,576,567
3,576,807	562 : 3,576,866	261-46 : 3,576,927	312-257 : 3,576,457	202 : 3,576,514	3,576,568
3,576,808	567.6 : 3,576,867	24 : 3,576,928	313-71 : 3,576,458	339-74 : 3,576,515	3,576,569
3,576,809	570 : 3,576,868	37 : 3,576,929	231 : 3,576,459	91 : 3,576,516	3,576,570
3,576,810	575 : 3,576,869	45 : 3,576,930	315-3.5 : 3,576,460	94 : 3,576,517	3,576,571
3,576,811	577 : 3,576,870	51 : 3,576,931	18 : 3,576,461	98 : 3,576,518	3,576,572
3,576,812	583 : 3,576,871	57 : 3,576,932	22 : 3,576,462	186 : 3,576,519	3,576,573
3,576,813	584 : 3,576,872	94 : 3,576,933	26 : 3,576,463	198 : 3,576,520	3,576,574
3,576,814	586 : 3,576,873	95 : 3,576,934	27 : 3,576,464	340-3 : 3,576,521	3,576,575
3,576,815	588 : 3,576,874	102 : 3,576,935	107 : 3,576,465	15.5 : 3,576,522	3,576,576
3,576,816	589 : 3,576,875	137 : 3,576,936	137 : 3,576,466	29 : 3,576,523	3,576,577
3,576,817	590 : 3,576,876	206 : 3,576,937	209 : 3,576,467	32 : 3,576,524	3,576,578
3,576,818	591 : 3,576,877	209 : 3,576,938	209 : 3,576,468	38 : 3,576,525	3,576,579
3,576,819	592 : 3,576,878	211 : 3,576,939	211 : 3,576,469	52 : 3,576,526	3,576,580
3,576,820	593 : 3,576,879	212 : 3,576,940	212 : 3,576,470	60 : 3,576,527	3,576,581
3,576,821	594 : 3,576,880	213 : 3,576,941	213 : 3,576,471	67 : 3,576,528	3,576,582
3,576,822	595 : 3,576,881	214 : 3,576,942	214 : 3,576,472	71 : 3,576,529	3,576,583
3,576,823	596 : 3,576,882	215 : 3,576,943	215 : 3,576,473	72 : 3,576,530	3,576,584
3,576,824	597 : 3,576,883	216 : 3,576,944	216 : 3,576,474	81 : 3,576,531	3,576,585
3,576,825	598 : 3,576,884	217 : 3,576,945	217 : 3,576,475	146.2 : 3,576,532	3,576,586
3,576,826	599 : 3,576,885	218 : 3,576,946	218 : 3,576,476	3,576,533	3,576,587
3,576,827	600 : 3,576,886	219 : 3,576,947	219 : 3,576,477	3,576,534	3,576,588
3,576,828	601 : 3,576,887	220 : 3,576,948	220 : 3,576,478	3,576,535	3,576,589
3,576,829	602 : 3,576,888	221 : 3,576,949	221 : 3,576,479	3,576,536	3,576,590
3,576,830	603 : 3,576,889	222 : 3,576,950	222 : 3,576,480	3,576,537	3,576,591
3,576,831	604 : 3,576,890	223 : 3,576,951	223 : 3,576,481	3,576,538	3,576,592
3,576,832	605 : 3,576,891	224 : 3,576,952	224 : 3,576,482	3,576,539	3,576,593
3,576,833	606 : 3,576,892	225 : 3,576,953	225 : 3,576,483	3,576,540	3,576,594
3,576,834	607 : 3,576,893	226 : 3,576,954	226 : 3,576,484	3,576,541	3,576,595
3,576,835	608 : 3,576,894	227 : 3,576,955	227 : 3,576,485	3,576,542	3,576,596
3,576,836	609 : 3,576,895	228 : 3,576,956	228 : 3,576,486	3,576,543	3,576,597
3,576,837	610 : 3,576,896	229 : 3,576,957	229 : 3,576,487	3,576,544	3,576,598
3,576,838	611 : 3,576,897	230 : 3,576,958	230 : 3,576,488	3,576,545	3,576,599
3,576,839	612 : 3,576,898	231 : 3,576,959	231 : 3,576,489	3,576,546	3,576,600
3,576,840	613 : 3,576,899	232 : 3,576,960	232 : 3,576,490	3,576,547	3,576,601
3,576,841	614 : 3,576,900	233 : 3,576,961	233 : 3,576,491	3,576,548	3,576,602
3,576,842	615 : 3,576,901	234 : 3,576,962	234 : 3,576,492	3,576,549	3,576,603
3,576,843	616 : 3,576,902	235 : 3,576,963	235 : 3,576,493	3,576,550	3,576,604
3,576,844	617 : 3,576,903	236 : 3,576,964	236 : 3,576,494	3,576,551	3,576,605
3,576,845	618 : 3,576,904	237 : 3,576,965	237 : 3,576,495	3,576,552	3,576,606
3,576,846	619 : 3,576,905	238 : 3,576,966	238 : 3,576,496	3,576,553	3,576,607
3,576,847	620 : 3,576,906	239 : 3,576,967	239 : 3,576,497	3,576,554	3,576,608
3,576,848	621 : 3,576,907	240 : 3,576,968	240 : 3,576,498	3,576,555	3,576,609
3,576,849	622 : 3,576,908	241 : 3,576,969	241 : 3,576,499	3,576,556	3,576,610
3,576,850	623 : 3,576,909	242 : 3,576,970	242 : 3,576,500	3,576,557	3,576,611
3,576,851	624 : 3,576,910	243 : 3,576,971	243 : 3,576,501	3,576,558	3,576,612
3,576,852	625 : 3,576,911	244 : 3,576,972	244 : 3,576,502	3,576,559	3,576,613
3,576,853	626 : 3,576,912	245 : 3,576,973	245 : 3,576,503	3,576,560	3,576,614
3,576,854	627 : 3,576,913	246 : 3,576,974	246 : 3,576,504	3,576,561	3,576,615
3,576,855	628 : 3,576,914	247 : 3,576,975	247 : 3,576,505	3,576,562	3,576,616
3,576,856	629 : 3,576,915	248 : 3,576,976	248 : 3,576,506	3,576,563	3,576,617
3,576,857	630 : 3,576,916	249 : 3,576,977	249 : 3,576,507	3,576,564	3,576,618
3,576,858	631 : 3,576,917	250 : 3,576,978	250 : 3,576,508	3,576,565	3,576,619
3,576,859	632 : 3,576,918	251 : 3,576,979	251 : 3,576,509	3,576,566	3,576,620
3,576,860	633 : 3,576,919	252 : 3,576,980	252 : 3,576,510	3,576,567	3,576,621
3,576,861	634 : 3,576,920	253 : 3,576,981	253 : 3,576,511	3,576,568	3,576,622
3,576,862	635 : 3,576,921	254 : 3,576,982	254 : 3,576,512	3,576,569	3,576,623
3,576,863	636 : 3,576,922	255 : 3,576,983	255 : 3,576,513	3,576,570	3,576,624
3,576,864	637 : 3,576,923	256 : 3,576,984	256 : 3,576,514	3,576,571	3,576,625
3,576,865	638 : 3,576,924	257 : 3,576,985	257 : 3,576,515	3,576,572	3,576,626
3,576,866	639 : 3,576,925	258 : 3,576,986	258 : 3,576,516	3,576,573	3,576,627
3,576,867	640 : 3,576,926	259 : 3,576,987	259 : 3,576,517	3,576,574	3,576,628
3,576,868	641 : 3,576,927	260 : 3,576,988	260 : 3,576,518	3,576,575	3,576,629
3,576,869	642 : 3,576,928	261 : 3,576,989	261 : 3,576,519	3,576,576	3,576,630
3,576,870	643 : 3,576,929	262 : 3,576,990	262 : 3,576,520	3,576,577	3,576,631
3,576,871	644 : 3,576,930	263 : 3,576,991	263 : 3,576,521	3,576,578	3,576,632
3,576,872	645 : 3,576,931	264 : 3,576,992	264 : 3,576,522	3,576,579	3,576,633
3,576,873	646 : 3,576,932	265 : 3,576,993	265 : 3,576,523	3,576,580	3,576,634
3,576,874	647 : 3,576,933	266 : 3,576,994	266 : 3,576,524	3,576,581	3,576,635
3,576,875	648 : 3,576,934	267 : 3,576,995	267 : 3,576,525	3,576,582	3,576,636
3,576,876	649 : 3,576,935	268 : 3,576,996	268 : 3,576,526	3,576,583	3,576,637
3,576,877	650 : 3,576,936	269 : 3,576,997	269 : 3,576,527	3,576,584	3,576,638
3,576,878	651 : 3,576,937	270 : 3,576,998	270 : 3,576,528	3,576,585	3,576,639
3,576,879	652 : 3,576,938	271 : 3,576,999	271 : 3,576,529	3,576,586	3,576,640
3,576,880	653 : 3,576,939	272 : 3,577,000	272 : 3,576,530	3,576,587	3,576,641
3,576,881	654 : 3,576,940	273 : 3,577,001	273 : 3,576,531	3,576,588	3,576,642
3,576,882	655 : 3,576,941	274 : 3,577,002	274 : 3,576,532	3,576,589	3,576,643
3,576,883	656 : 3,576,942	275 : 3,577,003	275 : 3,576,533	3,576,590	3,576,644
3,576,884	657 : 3,576,943	276 : 3,577,004	276 : 3,576,534	3,576,591	3,576,645
3,576,885	658 : 3,576,944	277 : 3,577,005	277 : 3,576,535	3,576,592	3,576,646
3,576,886	659 : 3,576,945	278 : 3,577,006	278 : 3,576,536	3,576,593	3,576,647
3,576,887	660 : 3,576,946	279 : 3,577,007	279 : 3,576,537	3,576,594	3,576,648
3,576,888	661 : 3,576,947	280 : 3,577,008	280 : 3,576,538	3,576,595	3,576,649
3,576,889	662 : 3,576,948	281 : 3,577,009	281 : 3,576,539	3,576,596	3,576,650
3,576,890	663 : 3,576,949	282 : 3,577,010	282 : 3,576,540	3,576,597	3,576,651
3,576,891	664 : 3,576,950	283 : 3,577,011	283 : 3,576,541	3,576,598	3,576,652
3,576,892	665 : 3,576,951	284 : 3,577,012	284 : 3,576,542	3,576,599	3,576,653
3,576,893	666 : 3,576,952	285 : 3,577,013	285 : 3,576,543	3,576,600	3,576,654
3,576,894	667 : 3,576,953	286 : 3,577,014	286 : 3,576,544	3,576,601	3,576,655
3,576,895	668 : 3,576,954	287 : 3,577,015	287 : 3,576,545	3,576,602	3,576,656
3,576,896	669 : 3,576,955	288 : 3,577,016	288 : 3,576,546	3,576,603	3,576,657
3,576,897	670 : 3,576,956	289 : 3,577,017	289 : 3,576,547	3,576,604	3,576,658
3,576,898	671 : 3,576,957	290 : 3,577,018	290 : 3,576,548	3,576,605	3,576,659
3,576,899	672 : 3,576,958	291 : 3,577,019	291 : 3,576,549	3,576,606	3,576,660
3,576,900	673 : 3,576,959	292 : 3,577,020	292 : 3,576,550	3,576,607	3,576,661
3,576,901	674 : 3,576,960	293 : 3,577,021	293 : 3,576,551	3,576,608	3,576,662
3,576,902	675 : 3,576,961	294 : 3,577,022	294 : 3,576,552	3,576,609	3,576,663
3,576,903	676 : 3,576,962	295 : 3,577,023	295 : 3,576,553	3,576,610	

GEOGRAPHICAL INDEX OF RESIDENCE OF INVENTORS

26 : 3.576.319	29 : 3.576.741	34 : 3.576.886	36 : 3.576.648	40 : 3.576.043	44 : 3.576.879
3.576.331	3.576.756	3.576.888	3.576.674	3.576.215	45 : 3.576.094
3.576.338	3.576.833	3.576.892	3.576.699	3.576.521	3.576.458
3.576.345	3.576.862	3.576.893	3.576.730	3.576.615	3.576.704
3.576.347	3.576.882	3.576.896	3.576.779	41 : 3.576.050	3.576.927
3.576.351	3.576.890	3.576.901	3.576.805	3.576.147	47 : 3.576.179
3.576.372	3.576.915	3.576.926	3.576.813	3.576.209	3.576.441
3.576.376	3.576.926	3.576.945	3.576.826	3.576.210	3.576.472
3.576.380	3.576.926	3.576.970	3.576.870	42 : 3.576.051	3.576.622
3.576.388	3.576.926	3.576.970	3.576.916	3.576.057	3.576.780
3.576.409	3.576.926	3.576.970	3.576.924	3.576.059	48 : 3.576.108
3.576.413	3.576.926	3.576.970	3.576.981	3.576.062	3.576.219
3.576.444	3.576.926	3.576.970	3.576.176	3.576.063	3.576.265
3.576.469	3.576.926	3.576.970	3.576.425	3.576.077	3.576.286
3.576.489	3.576.926	3.576.970	3.576.488	3.576.084	3.576.308
3.576.528	3.576.926	3.576.970	3.576.590	3.576.099	3.576.309
3.576.530	3.576.926	3.576.970	3.576.591	3.576.123	3.576.394
3.576.576	3.576.926	3.576.970	3.576.769	3.576.142	3.576.421
3.576.610	3.576.926	3.576.970	3.576.889	3.576.160	3.576.475
3.576.673	3.576.926	3.576.970	3.576.213	3.576.211	3.576.522
3.576.675	3.576.926	3.576.970	3.576.213	3.576.221	3.576.531
3.576.707	3.576.926	3.576.970	3.576.213	3.576.222	3.576.620
3.576.725	3.576.926	3.576.970	3.576.213	3.576.223	3.576.644
3.576.728	3.576.926	3.576.970	3.576.213	3.576.249	3.576.841
3.576.747	3.576.926	3.576.970	3.576.213	3.576.277	3.576.848
3.576.752	3.576.926	3.576.970	3.576.213	3.576.330	3.576.856
3.576.753	3.576.926	3.576.970	3.576.213	3.576.401	3.576.929
3.576.754	3.576.926	3.576.970	3.576.213	3.576.448	3.576.932
3.576.787	3.576.926	3.576.970	3.576.213	3.576.456	49 : 3.576.558
3.576.803	3.576.926	3.576.970	3.576.213	3.576.468	3.576.666
3.576.808	3.576.926	3.576.970	3.576.213	3.576.473	51 : 3.576.252
3.576.838	3.576.926	3.576.970	3.576.213	3.576.485	3.576.301
3.576.863	3.576.926	3.576.970	3.576.213	3.576.506	3.576.327
3.576.904	3.576.926	3.576.970	3.576.213	3.576.515	3.576.481
3.576.905	3.576.926	3.576.970	3.576.213	3.576.519	3.576.487
3.576.906	3.576.926	3.576.970	3.576.213	3.576.520	3.576.516
27 : 3.576.040	3.576.926	3.576.970	3.576.213	3.576.582	3.576.589
3.576.041	3.576.926	3.576.970	3.576.213	3.576.595	3.576.598
3.576.097	3.576.926	3.576.970	3.576.213	3.576.596	3.576.757
3.576.120	3.576.926	3.576.970	3.576.213	3.576.608	3.576.793
3.576.191	3.576.926	3.576.970	3.576.213	3.576.609	3.576.810
3.576.240	3.576.926	3.576.970	3.576.213	3.576.619	3.576.819
3.576.256	3.576.926	3.576.970	3.576.213	3.576.654	53 : 3.576.616
3.576.322	3.576.926	3.576.970	3.576.213	3.576.663	3.576.661
3.576.333	3.576.926	3.576.970	3.576.213	3.576.664	54 : 3.576.262
3.576.378	3.576.926	3.576.970	3.576.213	3.576.665	3.576.651
3.576.432	3.576.926	3.576.970	3.576.213	3.576.668	3.576.767
3.576.518	3.576.926	3.576.970	3.576.213	3.576.700	3.576.807
3.576.523	3.576.926	3.576.970	3.576.213	3.576.706	3.576.816
3.576.550	3.576.926	3.576.970	3.576.213	3.576.717	3.576.918
3.576.563	3.576.926	3.576.970	3.576.213	3.576.735	3.576.919
3.576.645	3.576.926	3.576.970	3.576.213	3.576.761	55 : 3.576.078
3.576.697	3.576.926	3.576.970	3.576.213	3.576.768	3.576.080
3.576.866	3.576.926	3.576.970	3.576.213	3.576.771	3.576.173
3.576.903	3.576.926	3.576.970	3.576.213	3.576.799	3.576.174
28 : 3.576.403	3.576.926	3.576.970	3.576.213	3.576.814	3.576.216
29 : 3.576.048	3.576.926	3.576.970	3.576.213	3.576.823	3.576.255
3.576.169	3.576.926	3.576.970	3.576.213	3.576.829	3.576.431
3.576.244	3.576.926	3.576.970	3.576.213	3.576.846	3.576.467
3.576.254	3.576.926	3.576.970	3.576.213	3.576.855	3.576.570
3.576.267	3.576.926	3.576.970	3.576.213	3.576.877	3.576.649
3.576.278	3.576.926	3.576.970	3.576.213	3.576.883	3.576.710
3.576.323	3.576.926	3.576.970	3.576.213	3.576.887	3.576.715
3.576.652	3.576.926	3.576.970	3.576.213	3.576.891	3.576.716
3.576.712	3.576.926	3.576.970	3.576.213	3.576.895	3.576.718
3.576.740	3.576.926	3.576.970	3.576.213	44 : 3.576.113	

Design Patents

6 : 220.588	17 : 220.600	26 : 220.604	36 : 220.572	36 : 220.592	39 : 220.591
220.597	220.570	220.590	220.582	220.593	42 : 220.568
9 : 220.589	220.564	220.560	220.584	220.598	48 : 220.578
17 : 220.573	220.594	220.565	220.585	220.599	49 : 220.606
220.579	220.602	220.569	220.586	220.601	53 : 220.581
220.595	220.603	220.571	220.587	220.605	

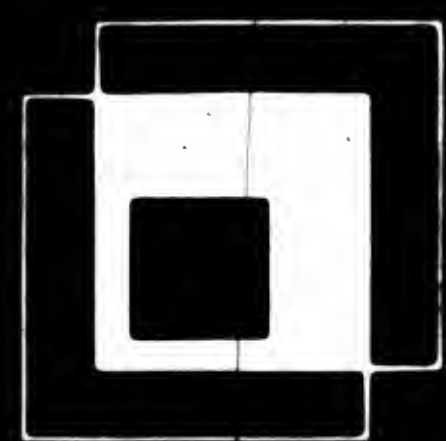
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